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Concurrent Validation of the Adaptive Vocational Interest Diagnostic

Christopher D. Nye
Drasgow Consulting Group

Cristina D. Kirkendall
U.S. Army Research Institute

Fritz Drasgow
James Rounds
Oleksandr S. Chernyshenko
Stephen Stark
Drasgow Consulting Group

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Department of the Army
Deputy Chief of Staff, G1

Authorized and approved:

MICHELLE ZBYLUT, Ph.D.
Director

Research accomplished under contract
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Drasgow Consulting Group

Technical review by

Naiqing Lin, U.S. Army Research Institute
Elizabeth Uhl, U.S. Army Research Institute

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14. ABSTRACT. *(Maximum 200 words)*:

The Adaptive Vocational Interest Diagnostic (AVID) was developed to help recruits in the U.S. Army identify military occupational specialties (MOS) that match their interests. Initial research with the AVID demonstrated that this assessment is a valid predictor of Soldiers' attitudes and performance in several MOS. The goal of the current research was to expand this previous work by examining the validity of the AVID in several new MOS and using a broader set of AVID dimensions. The data for this research were obtained from four samples of Active Duty Soldiers. In Sample 1, Soldiers were intentionally sampled from five different MOS and the validity of the AVID dimensions was compared across these occupations. In Samples 2 and 3, Soldiers from a large number of MOS were assessed and the validity of the AVID was examined in the full samples. Finally, in Sample 4, the validity of the AVID in a sample of Cyber Operators was examined. The results of these analyses indicated that the AVID has validity for predicting important military outcomes and differential validity across MOS. These findings provide additional evidence that the AVID may be useful for MOS assignment.

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Drasgow Consulting Group

Selection and Assignment Research Unit
Tonia S. Heffner, Chief

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CONCURRENT VALIDATION OF THE ADAPTIVE VOCATIONAL INTEREST DIAGNOSTIC

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INTRODUCTION

A growing body of research has shown that vocational interests can be important predictors of both work and academic outcomes. For example, Van Iddekinge, Roth, Putka, and Lanivich (2011) showed that interests were moderately correlated with a number of performance outcomes on the job. In addition, Nye, Su, Rounds, and Drasgow (2017) conducted a comprehensive meta-analysis of the relationship between interests and work performance that summarized over 60 years of research, 92 studies, and 1,858 correlations. These authors found that the match between individuals' interests and the activities performed on their jobs (called congruence in the vocational interest literature) was a strong predictor of performance outcomes including task performance, organizational citizenship behavior, turnover, and training performance, with correlations ranging from .19 to .40. Similar research showed that interest congruence can also predict performance in academic settings (Nye, Su, Rounds, and Drasgow, 2012).

Given the positive validity evidence for vocational interests, high quality assessments are necessary to realize the benefits of these individual differences in the workplace. To address this need in the U.S. Army, Drasgow Consulting Group (DCG) and the U.S. Army Research Institute (ARI) developed the Adaptive Vocational Interest Diagnostic (AVID) for use in high-stakes military contexts. This measure has shown promise for predicting a number of important Soldier outcomes (Nye, Rounds, Kirkendall, Drasgow, Chernyshenko, & Stark, 2019). However, more research is needed to examine the validity of the AVID dimensions in a broader range of military occupational specialties (MOS). This report describes a set of validation studies that were designed to address this need and to provide additional evidence for the concurrent validity of the AVID.

BACKGROUND

The AVID was developed to take advantage of recent psychometric advances and developments in the theory of vocational interests. First, the AVID was designed to assess a broad range of narrow interest dimensions known as basic interests. Although many interest measures assess the broader occupational themes proposed by Holland (1997; see Table 1), these interest dimensions may be too broad, particularly for differentiating between the various MOS in the Army. In contrast, basic interests are narrow dimensions of interest that group together work activities that are relevant to a number of occupations (Jackson, 1977; Liao, Armstrong, & Rounds, 2008). These narrow interest dimensions are analogous to trait facets in personality research and assessing basic interests can provide both the content specificity and the flexibility required to more accurately select and assign individuals into a broad range of occupations. Therefore, the AVID was developed to assess the 20 basic interest dimensions shown in Table 1.

Table 1. ***AVID Dimensions and Definitions***

Basic Interests	Activities Associated with Each Dimension	Broader Interest Dimension (Holland, 1997)
Construction	Designing and/or building things or maintaining structures with one's hands or using tools and materials. Includes jobs similar to construction worker, mason, or welder.	Realistic
Protection	Guarding, ensuring safety, and enforcing rules and laws. May include jobs as a law enforcement officer, park ranger, firefighter, or in leadership and management positions in protective service organizations.	
Combat	Operating weapons and equipment in ground combat operations; performing reconnaissance operations; attacking enemy positions and defending friendly posts. Includes jobs in infantry, field artillery, and special forces.	
Physical Activity	Engaging in physical activity, exercise, sports, and games. Includes jobs as a physical trainer, athletic coach, and strength training coach.	
Mechanical	Building, maintaining, repairing, and using small and large machinery, including driving and operating heavy equipment or large vehicles. Includes jobs as mechanics, service repair people, mechanical engineers, factory or laboratory machinists, pilots, boat captains, and truck drivers.	
Electronics	Building, maintaining, repairing, and using electronics including computer hardware and small electronics. Includes jobs as electricians, broadcast technicians, electronic equipment installers and repair people, and electrical engineers.	
Outdoor	Working in the outdoors. Includes jobs as farmers, forest rangers, veterinarians, zoologists, landscapers, and groundskeepers.	
Writing	Writing factual reports, memos, textbooks, scientific, legal, historical, or technical essays for business and record-keeping purposes.	Artistic
Teaching	Instructing people inside and outside of school (e.g., teachers and instructors in school, churches, clinics, and welfare agencies). May also include training and coaching jobs, child-care assistants, teacher aides, and physical therapy assistants.	Social
Personal Service	Performing everyday tasks for others. May include jobs similar to server, household worker, hair stylist, flight attendant, or hotel concierge.	

Table 1 ***(con't). AVID Dimensions and Definitions***

Medical Services	Applying medical knowledge and skills to the diagnosis, prevention, and treatment of disease and injury. May include jobs as paramedics, physician's assistant, nursing, emergency medical operations, physical therapy, and dental hygienists.	Investigative
Mathematics	Working with data and applying quantitative and statistical concepts and mathematical formulas. May include jobs as statisticians, mathematicians, engineers, or financial analysts.	
Science	Involves scientific activities such as studying biology, astronomy, geology, and physics; reading books about science; and doing scientific research or related activities. May include jobs as scientists and laboratory workers or in health services, technology and medical paraprofessionals, nutritional or pharmaceutical services involving scientific interests.	
Information Technology	Developing, maintaining, and using computer systems, software, and networks for the processing and distribution of data. May include jobs like computer systems analyst, network administrator, software developer, web administrator, and database administrator.	
Management	Leading others and influencing people and decisions. Includes administrative or supervisory positions, such as a shop foreperson, supervisor, school administrator, police or fire chief, head librarian, executive, hotel manager, or union official. Includes owning or managing a store or business.	Enterprising
Sales	Includes activities that involve selling products and services (e.g., in stores, offices, and customers' homes) and jobs in the fields of auto sales, insurance, lobbying, public relations, and real estate.	
Human Relations	Arranging positive interpersonal interactions for individuals. Includes setting company policies, acting as a mediator in a conflict, and solving interpersonal situations. Can also include activities that focus on increasing the satisfaction, morale, and motivation of employees. May include jobs as an arbitrator, mediator, human resource manager, or labor relations specialist.	
Office Work	Performing clerical, administrative, and business-related activities (recording, data processing, typing, filing, etc.). May include jobs as an office manager, bookkeeper, receptionist, secretary, and administrative assistants.	Conventional
Finance	Managing assets and debt. Includes jobs that utilize numbers in business bookkeeping, accounting, and tax procedures.	
Food Service	Food processing, cooking, planning menus, and related activities. Includes jobs such as short-order cooks, cafeteria workers, caterers, food service managers, and waiters/waitresses	

Another advantage of the AVID is that it was developed using modern test theory and recent findings related to the psychometric properties of interest items. For example, recent research has indicated that an ideal point IRT model provides the best representation of the response process for interest items (Tay, Drasgow, Rounds, & Williams, 2009). An ideal point model suggests that the choice to endorse or not endorse a statement is described by a proximity relation, wherein one tends to endorse an item only if he/she is located near the item on the latent continuum. Past research has shown that fitting an incorrect response model to ideal point data can attenuate correlations between variables and negatively affect selection decisions (Carter, Dalal, Boyce, O'Connell, Kung, & Delgado, 2014; Dalal & Carter, 2015). Therefore, the AVID was developed using the framework of ideal point models.

A third advantage of the AVID is that it was developed to be resistant to faking and other responses biases (e.g., acquiescent responding). To facilitate its use in high-stakes settings, the AVID is administered in a two-alternative forced-choice format where statements assessing different basic interest dimensions, but matched on their extremity and social desirability, are administered in pairs. Respondents are then asked to select the statement that is "most like you." Past research has demonstrated that this forced-choice format can mitigate the effects of faking (Cao & Drasgow, 2019), even in high-stakes settings (Drasgow et al., 2012). Though faking on interest assessments would not be advantageous for test takers, respondents may still intentionally distort their responses to try to increase their chances of matching with a specific MOS. Respondents may also unintentionally distort their responses due to perceived social desirability of interest dimensions. The forced-choice format also helps mitigate these response distortions. Responses to the forced-choice AVID items are then scored using the multidimensional pairwise preference (MDPP) model (Stark, Chernyshenko, & Drasgow, 2005), which can address potential concerns with ipsativity and successfully recover normative scores regardless of how many interest dimensions are assessed. Both the forced-choice format and the MDPP model have been used successfully with the Army's Tailored Adaptive Personality Assessment System (TAPAS), which has demonstrated validity in a wide range of settings and occupations (Nye et al., 2012).

Finally, the AVID can also be administered in either a static or a computer adaptive testing (CAT) format. One advantage of CAT is that the assessment can be updated and administered more efficiently than a paper-and-pencil form. In addition, the adaptive process allows for a reduced number of items to be administered with some research indicating that test length can be cut by up to 50% with no loss of measurement precision (Stark, Chernyshenko, Drasgow, & White, 2012).

VALIDITY OF THE AVID

Given the advantages of the AVID, we expect this assessment to demonstrate validity in high-stakes testing situations and to help recruits identify MOS that they will be satisfied with and successful in. Initial research provided validity evidence for the AVID in several MOS (Nye et al., 2019). Across several criteria and two different samples, the multiple Rs for regression weighted composites of the AVID dimensions ranged from .14 to .52. In addition, the AVID predicted overall performance Army-wide and in specific MOS, including Infantry (11B), Military Police (31B), Combat Medics (68W), Motor Transport Operators (88M), and Wheeled

Vehicle Mechanics (91B). The multiple Rs for predicting overall performance in these MOS varied from .43 to .57.

When examining the validity of vocational interests, an important consideration is interest fit (i.e., the match between individuals and their jobs). In his widely researched theory, Holland (1959, 1997) proposed that individuals who fit with their jobs will be more satisfied, successful, and will persist on the job longer. Recent research has provided support for this prediction and demonstrated the role of interest fit at work. In their meta-analysis, Nye et al. (2017) found that interest fit was a much better predictor of performance than interest scales alone. Similarly, Nye et al. (2019) also demonstrated that the fit between Soldiers' AVID scores and their MOS was a strong predictor of their attitudes and engagement. Although strong validities were found for the AVID interest dimensions alone, these validities increased further when the fit between individuals and their MOS was examined (i.e., multiple Rs ranged from .56 to .70). Therefore, it appears that the match between Soldiers' vocational interests and their MOS is important for predicting attitudes and performance in the Army.

PURPOSE OF THE CURRENT RESEARCH

Despite the initial validity evidence for the AVID, more research is needed to evaluate its utility for MOS assignment. For example, previous validity research on the AVID was limited to only five MOS (Nye et al., 2019). Although the AVID predicted performance well in these MOS, these results do not speak to their overall utility in other MOS. In addition, Nye et al. (2019) found that the composites of the AVID dimensions that predicted performance best in each MOS differed substantially in some cases. In other words, as expected by interest theory (Holland, 1997), each MOS had a slightly different interest profile and understanding these profiles is important for determining the potential utility of the AVID for classification. Therefore, additional research with other MOS is needed.

In addition, previous research on the AVID only examined a subset of the 20 basic interest dimensions shown in Table 1. Due to limits on testing time and concerns about test-taker fatigue, only 16 of the 20 dimensions were administered in previous research. As a result, research is needed to determine the validity of the four remaining AVID dimensions, including Science, Personal Service, Sales, and Finance. The goal of the current research was to address these limitations and provide further concurrent validity evidence for the AVID in four samples of U.S. Army Soldiers and with several new occupations. Consistent with past research (Nye et al., 2019), we examined the validity of the AVID both in the full samples and using MOS-specific composites. Finally, across these samples, we collected data on all 20 basic interest dimensions assessed by the AVID.

METHOD

Samples and Procedures

Sample 1. The data for the first sample were collected from U.S. Army Soldiers between November 2018 and March 2020. The data consisted of 2,098 Soldiers and were collected from Army installations across the United States. Approximately 72% of the sample was male and 37% of the sample was white, 26% black, and 21% Hispanic. The majority of the sample (55%) had one year or less of college education and most were Sergeants (E-5; 52%).

As noted above, the match between individuals and their jobs is particularly important for predicting work outcomes. Therefore, to examine the validity of the AVID in specific occupations and explore differences across MOS, we focused on five high-density MOS to ensure adequate sample sizes for these analyses: Combat Engineers (12B; n = 296), Cavalry Scouts (19D; n = 291), Human Resource Specialists (42A; n = 306), Automated Logistical Specialists (92A; n = 282), and Unit Supply Specialists (92Y; n = 424). Given that we had several Soldiers from the 92 series MOS (i.e., Army Quartermaster Corps, 92A-92Y; n = 722), we also examined the interest profile for this broader cluster of MOS.

Both the AVID and criterion measures were administered to Soldiers in Sample 1 simultaneously in a paper-and-pencil format. As the session began, Soldiers were informed of the purpose of the session and given instructions for filling out the Scantron forms. They were then given instructions for completing the assessments and were provided with an example AVID item to illustrate the question and response formats. Soldiers completed three sections of the assessment. The first section consisted of AVID items while the second section contained the criterion measures. Finally, the third section asked Soldiers to rate the relevance of each AVID dimension for their MOS. Responses to the third section were used to calculate the fit between each individual and his or her MOS.

Sample 2. The data for the second sample were collected as part of the *Validation of Accession Screening Tools* (VAST) program of research. The data consisted of a total of 1,110 respondents. The majority of individuals in this sample were either Private First Class (E-3; 31%) or Specialists (E-4; 44%). No other demographic data were collected from this sample. Although Sample 1 was collected by targeting Soldiers in specific high-density MOS, the data for Sample 2 were collected from a much broader sample and included a greater number of MOS, with small numbers of Soldiers in each MOS. Therefore, our analyses focused on examining the validity of the AVID in the full sample rather than in specific MOS.

The data collection procedures for Sample 2 were similar to the procedures used for Sample 1. For example, the same version of AVID was administered in both samples. However, there were two primary differences. First, although the purpose of Sample 1 was solely to evaluate the validity of the AVID, Sample 2 was part of a larger effort to validate several assessments. Therefore, this work was not designed specifically for the AVID but provided a useful source of additional data to examine the validity of this assessment. Second, the measures for Sample 2 were administered in a computerized static format. Soldiers were asked to log onto the computer to access the assessment and enter their ID number. Next, they were informed of the purpose of the assessment and asked to provide consent to participate. They then responded to a series of questions assessing demographic information, the AVID dimensions, the criteria,

and each Soldier's ratings of his or her MOS on the AVID dimensions. Again, Soldiers' ratings of their MOS were used to calculate the fit between each individual and his or her MOS.

Sample 3. The data for the third sample were also collected as part of the VAST research program and consisted of responses from 918 Soldiers. Consistent with Sample 2, the vast majority of individuals in this sample were either Private First Class (E-3; 29%) or Specialists (E-4; 54%). No other demographic data were collected from this sample. In general, the measures and procedures used in this sample were the same as in Sample 2. However, a different version of the AVID (described below) was administered to collect data on several of the basic interest dimensions that had not been examined in previous research. As with Sample 2, the analyses in Sample 3 focused on examining the validity of the AVID in the full sample rather than in specific MOS.

Sample 4. Finally, the data for the fourth sample consisted of 100 responses from a sample of Cyber Operators recruited from Army cyber units. The vast majority (85%) of this sample were Cyber Operations Specialists (17C) but several Soldiers were also from other cyber occupations (e.g., Cyberspace Intelligence Collector/Analyst; 35Q). Approximately 51% of this sample had a postsecondary degree but only 25% had degrees related to computer science. The ranks of individuals in this sample were generally Specialist (E-4; 35%), Sergeant (E-5; 23%), or Staff Sergeant (E-6; 33%). Although the sample size for this group was relatively small, these data provide an initial look at the validity of the AVID in cyber occupations, which have grown in importance in recent years. Therefore, results are reported for this sample but they should be interpreted with caution given the small sample size and the corresponding potential for error in these analyses.

Participants in this sample were recruited as part of a broader evaluation of a cyber assessment battery. As part of this evaluation, they also completed the same version of the AVID that was administered in Samples 1 and 2. In addition to the AVID, participants also completed many of the same outcome measures administered in the other samples as well as ratings of their MOS. However, due to constraints on testing time, only a limited number of outcomes were assessed.

Measures

As described above, two different versions of the AVID were administered to these samples. The same criterion measures (or a subset) were used in all four samples. In addition, because the data collections in Samples 2, 3, and 4 were designed for broader validation efforts, these data collections included some additional assessments that were not used for the analyses presented in this report.

AVID (Form 1). A 123 item static version of the AVID was administered to Soldiers in Samples 1, 2, and 4. As described above, this version of the AVID assessed 16 basic interests (all the AVID dimensions except for Science, Personal Service, Sales, and Finance). Only 16 of the 20 AVID dimensions were administered to reduce the amount of testing time and alleviate concerns about test-taker fatigue. The AVID statements were administered in a forced-choice format and Soldiers were asked to pick one statement in each pair that was "more like you." Again, the statements for each pair were matched based on their extremity and social desirability to mitigate the effects of faking and response biases on the interest scores.

AVID (Form 2). The version of AVID that was administered in Sample 3 also contained 123 items and assessed 16 basic interest dimensions in a static format. However, in this form, four of the AVID dimensions administered in Form 1 (i.e., Electronics, Food Service, Medical Services, and Outdoors) were replaced by other AVID dimensions that had not been administered previously (i.e., Finance, Personal Service, Science, Sales). The remaining 12 dimensions were the same in both forms. The AVID statements used in Sample 3 were also administered in the same forced-choice format as in Form 1 and all statements were matched based on their extremity and social desirability. In other words, the primary differences between the two versions of the AVID were in the specific basic interest dimensions that were assessed.

Army Life Questionnaire (ALQ). The criteria for all four samples were assessed using the ALQ. The ALQ is a self-report attitudinal measure currently used in ARI validation research (Nesbitt, Salmon, & Kirkendall, 2020).[1] The ALQ includes sections on Soldiers' demographic characteristics, background, and experience information, as well as assessments of Soldiers attitudes, perceptions of fit (both in the Army and in their MOS), commitment, resilience, motivation to lead (MTL), organizational citizenship behavior/Leadership (OCB), counterproductive Soldier behaviors (CSB), and career/reenlistment intentions. Descriptions of the ALQ scales included in this research are presented in Table 2. In addition to these scales, the ALQ also asked about Soldiers' Army Physical Fitness Test (APFT) scores and experiences with disciplinary incidents. As described above, a subset of the ALQ scales were administered in Sample 4 due to constraints on testing time. The scales administered in Sample 4 included the MOS fit, Army fit, affective commitment, MOS satisfaction, OCB, and career/reenlistment intentions scales. Soldiers in Sample 4 were also asked about their most recent APFT scores.

[1] The Army Life Questionnaire was initially developed in 2005 (Van Iddekinge, Putka, & Sager, 2005) and has been updated on several occasions to meet the Army's requirements for measuring Soldier outcomes.

Table 2. ***Army Life Questionnaire (ALQ) Scales***

Construct	Definition
Counterproductive Soldier Behaviors (CSB)	Intentional behaviors that harm or are intended to harm another Soldier or the legitimate interests of the unit
Army Fit	The extent to which a Soldier feels like the Army is a good match for them
MOS Fit	The extent to which a Soldier feels like their current MOS is a good fit
Affective Commitment	Soldiers' attachment to and identification with the Army
MOS Satisfaction	Satisfaction with the opportunities and daily work involved in the Soldier's MOS
Career Intentions	Likelihood of staying in the Army until retirement
Reenlistment Intentions	Likelihood of reenlisting for another term of service
Motivation to Lead (MTL)	The factors that affect an individual's decisions to assume leadership training, roles, and responsibilities, and affect his or her intensity of effort at leading and persistence as a leader (Chan & Drasgow, 2001); their conceptual and empirical model of MTL includes three underlying dimensions: Affective, Noncalculative, and Social-Normative
Organizational Citizenship Behavior and Leadership (OCB)	Engaging in voluntary behaviors to help another individual or the organization itself (Bateman & Organ, 1983), including behaviors that Soldiers engage in to display leadership qualities, absent of an official leadership role
Resilience	The capacity to overcome difficult life events with minimal disruption or long-term negative impacts on psychological and physical functioning (Bonanno, 2004)

Tables 3 through 5 provide the means, standard deviations, and intercorrelations for the criteria assessed by the ALQ in all four samples. In Table 3, the correlations for Sample 1 are provided below the diagonal and the correlations for Sample 2 are provided above the diagonal. The descriptive statistics for Samples 3 and 4 are provided in Tables 4 and 5, respectively. In addition to examining each outcome individually, we also examined the prediction of an overall performance composite. To do so, scores for each criterion were first standardized to account for differences in their standard deviations and then summed using unit weights to create an overall criterion score. Negatively worded scales (e.g., CSB) were reverse coded before calculating the overall performance scores so that all scales were in a consistent direction. Due to the relatively small relationships with disciplinary incidents in the overall samples (see below for further details), this outcome was not included as part of overall performance. The goal of combining criterion scales in this way was to determine the utility of the AVID for predicting a broader criterion variable and to examine composites of AVID scales that might be useful for MOS assignment decisions. Tables 3 and 4 also provide the descriptive statistics and intercorrelations for the overall performance composite. Because each of the scales comprising the overall performance composite was first standardized to account for differences in their distributions, the mean of this variable was near zero. Due to the limited number of ALQ scales that were administered in Sample 4, we did not examine an overall performance composite in that sample.

Table 3. ***Descriptive Statistics and Intercorrelations between the Criteria in Samples 1 and 2***

Variables	Mean (Sample 1)	SD (Sample 1)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1. MOS Fit	3.21	0.97	--	**.48**	**.45**	**.71**	**.25**	**.29**	**.33**	**.33**	**.26**	.05	**.30**	.04	-.05	**-.14**	**.57**
2. Army Fit	3.49	0.90	**.51**	--	**.73**	**.47**	**.41**	**.50**	**.61**	**.63**	**.46**	**.23**	**.48**	**.10**	**-.15**	**-.26**	**.79**
3. Affective Commitment	3.17	1.02	**.39**	**.60**	--	**.44**	**.41**	**.43**	**.59**	**.62**	**.39**	**.11**	**.46**	**.08**	**-.14**	**-.22**	**.75**
4. MOS Satisfaction	3.18	1.01	**.73**	**.53**	**.41**	--	**.26**	**.32**	**.36**	**.39**	**.20**	.02	**.25**	.03	-.06	**-.16**	**.56**
5. OCB	3.54	0.75	**.30**	**.40**	**.35**	**.39**	--	**.50**	**.30**	**.29**	**.59**	**.28**	**.56**	**.10**	**-.09**	**-.10**	**.62**
6. Resilience	3.76	0.79	**.33**	**.44**	**.36**	**.40**	**.60**	--	**.33**	**.30**	**.49**	**.16**	**.51**	**.13**	**-.13**	**-.19**	**.63**
7. Reenlistment Intentions	3.60	1.41	**.35**	**.58**	**.48**	**.46**	**.37**	**.38**	--	**.87**	**.28**	.07	**.32**	**.11**	**-.11**	**-.19**	**.68**
8. Career Intentions	3.45	1.44	**.35**	**.56**	**.47**	**.46**	**.36**	**.35**	**.87**	--	**.26**	.07	**.31**	**.09**	**-.12**	**-.21**	**.68**
9. MTL (Affective)	3.71	0.72	**.30**	**.41**	**.35**	**.26**	**.54**	**.46**	**.28**	**.26**	--	**.68**	**.84**	**.09**	**-.09**	**-.20**	**.69**
10. MTL (Noncalculative)	3.74	0.98	**.10**	**.27**	**.13**	**.08**	**.28**	**.23**	**.16**	**.14**	**.71**	--	**.32**	.02	-.03	**-.22**	**.37**
11. MTL (Social-Normative)	3.90	0.88	**.32**	**.42**	**.39**	**.29**	**.53**	**.48**	**.31**	**.27**	**.84**	**.36**	--	**.09**	**-.08**	**-.21**	**.68**
12. APFT[b]	3.87	1.55	.04	.06	**.11**	**.07**	**.15**	**.16**	.05	.04	**.12**	.03	**.12**	--	**-.13**	**-.09**	**.27**
13. Disciplinary Incidents	--[a]	--[a]	--[a]	--[a]	--[a]	--[a]	--[a]	--[a]	--[a]	--[a]	--[a]	--[a]	--[a]	--[a]	--	**.14**	**-.18**
14. CSB	2.14	0.64	**-.20**	**-.36**	**-.20**	**-.20**	**-.26**	**-.31**	**-.23**	**-.22**	**-.35**	**-.35**	**-.31**	.01	--[a]	--	**-.45**
15. Overall Performance	0.00	7.66	**.57**	**.75**	**.64**	**.64**	**.67**	**.67**	**.69**	**.67**	**.69**	**.43**	**.66**	**.25**	--[a]	**-.48**	--
	Mean (Sample 2)		2.95	3.34	2.96	2.87	3.26	3.86	3.07	2.87	3.62	3.58	3.89	242.26[b]	.26	2.00	.00
	SD (Sample 2)		.99	.89	1.00	.94	.75	.64	.41	1.32	.66	.90	.79	34.95	.44	.59	7.60

Note: Correlations below the diagonal are from Sample 1 and correlations above the diagonal are from Sample 2. Sample sizes ranged from 1,549 to 1,923 in Sample 1 and from 933 to 934 in Sample 2. Bolded values are significant, $p < .05$. OCB = Organizational Citizenship and Leadership; MTL = Motivation to Lead; APFT = Army Physical Fitness Test; CSB = Counterproductive Soldier Behaviors. [a] Disciplinary incidents did not have any variability in Sample 1 because all Soldiers indicated that they had engaged in these behaviors to some extent. Therefore, correlations could not be computed for this outcome in Sample 1. [b]APFT scores were reported on different metrics in Samples 1 and 2. In Sample 1, it was reported on a 1-6 scale with each response option corresponding to a 20-point interval. In Sample 2, APFT scores were reported in the raw score metric.

Table 4. ***Descriptive Statistics and Intercorrelations between the Criteria in Sample 3***

Variables	Mean (Sample 3)	SD (Sample 3)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1. MOS Fit	2.89	.92	1.00														
2. Army Fit	3.29	.90	**.36**	1.00													
3. Affective Commitment	2.86	1.00	**.40**	**.73**	1.00												
4. MOS Satisfaction	2.84	.93	**.71**	**.45**	**.43**	1.00											
5. OCB	3.22	.77	**.22**	**.31**	**.29**	**.21**	1.00										
6. Resilience	3.81	.69	**.25**	**.49**	**.39**	**.33**	**.45**	1.00									
7. Reenlistment Intentions	2.97	1.44	**.24**	**.62**	**.55**	**.34**	**.25**	**.32**	1.00								
8. Career Intentions	2.74	1.34	**.25**	**.63**	**.59**	**.35**	**.25**	**.35**	**.87**	1.00							
9. MTL (Affective)	3.60	.63	**.19**	**.34**	**.31**	**.18**	**.57**	**.46**	**.30**	**.28**	1.00						
10. MTL (Noncalculative)	3.57	.93	.02	**.18**	**.10**	.04	**.29**	**.17**	**.13**	**.12**	**.64**	1.00					
11. MTL (Social-Normative)	3.85	.78	**.21**	**.35**	**.36**	**.20**	**.50**	**.48**	**.30**	**.29**	**.80**	**.24**	1.00				
12. APFT	241.07	32.94	.02	.05	.02	-.03	**.09**	**.08**	.05	**.06**	**.08**	-.04	**.09**	1.00			
13. Disciplinary Incidents	.26	.44	-.05	**-.13**	-.05	-.05	-.05	**-.09**	-.04	**-.09**	.03	.05	.00	**-.12**	1.00		
14. CSB	2.07	.62	**-.12**	**-.36**	**-.27**	**-.19**	**-.07**	**-.26**	**-.24**	**-.24**	**-.29**	**-.21**	**-.30**	-.01	**.17**	1.00	
15. Overall Performance	.00	7.45	**.53**	**.77**	**.72**	**.59**	**.59**	**.66**	**.69**	**.70**	**.70**	**.35**	**.66**	**.21**	**-.10**	**-.46**	1.00

Note: Sample sizes ranged from 732 to 733. Bolded values are significant, $p < .05$. OCB = Organizational Citizenship and Leadership; MTL = Motivation to Lead; APFT = Army Physical Fitness Test; CSB = Counterproductive Soldier Behaviors.

Table 5. ***Descriptive Statistics and Intercorrelations between the Criteria in Sample 4***

Variables	Mean (Sample 4)	SD (Sample 4)	1	2	3	4	5	6	7	8
1. MOS Fit	4.03	.66	1.00							
2. Army Fit	3.46	.88	-.04	1.00						
3. Affective Commitment	3.08	1.05	-.07	**.69**	1.00					
4. MOS Satisfaction	3.28	1.00	**.48**	**.46**	**.36**	1.00				
5. OCB	3.45	.53	.09	**.30**	**.34**	.20	1.00			
6. Reenlistment Intentions	3.06	1.47	**-.22**	**.72**	**.57**	**.26**	**.38**	1.00		
7. Career Intentions	3.07	1.43	**-.23**	**.74**	**.64**	**.25**	**.24**	**.79**	1.00	
8. APFT	233.99	42.30	-.16	-.05	.01	-.19	.11	.03	-.09	1.00

Note: Sample sizes ranged from 96 to 99. Bolded values are significant, $p < .05$. OCB = Organizational Citizenship and Leadership; APFT = Army Physical Fitness Test.

MOS Ratings. Soldiers also responded to items asking them to rate their MOS on each of the 20 AVID dimensions. These ratings served two purposes: a) to indicate the perceived relevance of each AVID dimension for a particular MOS, and b) to identify the interest profile of each MOS for calculating person-job fit. As noted above, past research has shown that the validity of vocational interests is highest when considering the match between individuals and their environment. Therefore, these ratings were important for examining the validity of the AVID.

To collect these ratings, Soldiers were given the name and a description of each AVID dimension. Examples of activities that are associated with each dimension were also included to provide Soldiers with a clearer understanding of how these dimensions might relate to their MOS. Then, Soldiers were asked to rate "How descriptive is this dimension of your current MOS?" on a scale from 1 ("*Not at all descriptive*") to 7 ("*Extremely descriptive*"). The means and standard deviations for these ratings are provided in Table 6 for all four samples and variation across samples reflects the different MOS that are represented in each. For example, the mean ratings for the Human Relations dimension were highest in Sample 1, which included a number of individuals in the Human Resource Specialists MOS (42A). In addition, the highest mean ratings for the Electronics, Information Technology, and Mathematics dimensions were found in the sample of Cyber Operators (Sample 4). The mean ratings for the Outdoors dimension were highest in Samples 2 and 3, which included Soldiers from a broad range of MOS. In contrast, the mean ratings for the Food Service dimension were relatively low in all four samples.

Table 6. ***Means and Standard Deviations of the MOS Ratings***

	Sample 1		Sample 2		Sample 3		Sample 4	
Variables	**Mean**	**Standard Deviation**	**Mean**	**Standard Deviation**	**Mean**	**Standard Deviation**	**Mean**	**Standard Deviation**
Combat	3.29	2.13	3.40	2.56	2.96	2.24	1.59	1.29
Construction	2.65	1.86	1.81	1.55	2.06	1.79	1.27	.95
Electronics	2.37	1.69	3.09	2.13	2.27	1.75	4.03	1.97
Finance	2.62	1.87	1.28	1.03	1.44	1.15	1.41	.85
Food Service	1.89	1.53	1.46	1.22	1.38	1.24	1.09	.43
Human Relations	3.61	1.91	1.21	.83	3.48	2.16	3.16	1.66
Information Tech.	2.33	1.72	2.18	1.92	1.69	1.44	6.19	1.43
Management	4.50	1.89	3.28	2.07	4.63	2.03	4.83	1.46
Mathematics	3.23	1.83	2.80	1.90	2.62	1.82	4.23	1.71
Mechanical	2.76	1.77	3.62	2.19	3.62	2.19	1.83	1.44
Medical Services	2.34	1.66	2.19	1.70	2.29	1.73	1.13	.53
Office Work	3.91	2.18	1.77	1.62	3.02	1.96	4.48	1.69
Outdoors	2.79	1.91	3.58	2.36	3.54	2.28	1.40	.98
Personal Service	2.35	1.90	1.56	1.31	1.91	1.73	1.55	1.37
Physical Activity	3.80	1.96	4.54	2.13	4.67	2.08	1.84	1.39
Protection	3.03	1.93	2.74	2.05	2.77	2.11	2.18	1.52
Sales	2.01	1.59	4.67	2.00	1.22	.87	1.41	1.01
Science	2.06	1.57	2.40	1.74	1.61	1.35	2.28	1.65
Teaching	4.25	1.84	3.39	2.14	4.04	2.02	4.77	1.38
Writing	2.80	1.83	4.16	1.96	2.43	1.79	3.72	1.53

Note: N = 1,748 to 1,881 in Sample 1, N = 935 in Sample 2, N = 735 in Sample 3, N = 93 to 99 in Sample 4. There was a range of sample sizes for Samples 1 and 4 due to omitted responses from some Soldiers on the rating scales at the end of the survey. However, all Soldiers responded to all scales in Samples 2 and 3.

Analyses

Using the AVID and criterion data described above, we examined the validity of the AVID for predicting important military outcomes separately in each sample. Before conducting these analyses, the data were first screened for unmotivated responders. In addition to the items assessing the AVID dimensions, three items were also included in each sample to detect unmotivated responding. These items instructed participants to select a particular option for that item (e.g., "Select option B" or "For data quality check, please select this option for this pair"). Individuals who responded incorrectly (i.e., marked a response other than the one they were instructed to mark) to more than one of these response flags were excluded from all analyses (excluded n = 149 in Sample 1, n = 174 in Sample 2, n = 181 in Sample 3, and n = 1 in Sample 4). In addition, another 251 cases in Sample 1 were found to have no variability (SD = .00) on the ALQ, suggesting careless responding. Therefore, these individuals were also excluded from the validation analyses. After removing individuals flagged as careless responding, the total sample sizes for analyses were n = 1,549 in Sample 1, n = 936 in Sample 2, n = 737 in Sample 3, and n = 99 in Sample 4.

Next, we used the reduced datasets to examine the validity of the AVID in each sample. Given theory (Holland, 1997) and past research (Nye et al., 2019; Nye, Su, Rounds, & Drasgow, 2012, 2017) suggesting that the match between individuals and their environments is the best predictor of work outcomes, the focus of these analyses was on quantifying interest fit. However, consistent with past research demonstrating the benefits of regression-weighted composites for both interests (Van Iddekinge et al., 2011) and personality (Nye, Drasgow, Chernyshenko, Stark, Kubisiak, White, & Jose, 2012), we first used regression analyses to develop composites of the AVID scales that predicted each of the criteria assessed in this research.

Despite the potential validity of regression-weighted composites, this approach also has limitations. For example, in order to quantify the match (or fit) between an individual and his or her job, it is necessary to include interest scores for both the individual and the job. However, the regression-weighted composites described above only include the interest scores for the individual. Therefore, adding the MOS ratings to the model could also improve the prediction of work outcomes by providing a more appropriate way to operationalize interest fit.

Edwards (1993) provided the mathematical proof that regression models including both individual and environment scores can provide one way of operationalizing person-environment fit and suggested polynomial regression as an alternative to composites of individual scores alone. With this approach, individual interest scores are included in the model along with environment interest scores, quadratic terms for both the individual and environment scores, and interactions between individual scores and the corresponding environment scores. Although a full polynomial regression model includes all of these terms, it is important to evaluate the improvement in prediction at each step to determine whether adding the environment scores, interactions, and higher-order terms actually contributes to the prediction of the outcome. After identifying the best fitting regression model, the predicted scores from this model can then be used to represent the fit between an individual and the corresponding job. Nye, Prasad, Bradburn, and Elizondo (2018) demonstrated that operationalizing interest congruence in this way results in validities that are three to four times higher than using traditional congruence indices. In addition, previous research has found similar results using the AVID to examine Soldiers' fit with their MOS (Nye et al., 2019). Therefore, we used this approach here as well.

To identify the best regression models for calculating fit with the AVID scales, we tested a series of models that increased in complexity. First, we tested a model with just the individual interest scores included. Next, we added the MOS interest scores to the model and examined the change in validity. Then we added the interactions between individual and MOS interest scores, the quadratic (i.e., squared) terms for individual interest scores, and the quadratic terms for the MOS interest scores in subsequent models. In each case, we examined the change in model fit (R^2) and in the overall validity of the model (multiple R) to determine the most appropriate model. The best fitting model was then used for further analyses.

The initial analyses with the polynomial regression model were conducted in the full samples. However, once we identified the best model for prediction in Sample 1, we also examined differences across the five largest MOS in this sample. As noted above, the largest MOS in this sample included Combat Engineers (12B), Cavalry Scouts (19D), Human Resource Specialists (42A), Automated Logistical Specialists (92A), and Unit Supply Specialists (92Y). In addition, we also examined an AVID composite for the 92 series MOS (i.e., Army Quartermaster

Corps). The purpose of examining differences across MOS was to determine if different composites of AVID scales would be useful for predicting work outcomes in each occupation. In order to be useful for MOS assignment, the AVID scales need to not only demonstrate validity for predicting work outcomes but also show differential validity across MOS. Due to the smaller MOS-specific sample sizes in Samples 2, 3, and 4, we only examined AVID composites across all jobs in these samples.

RESULTS

Sample 1

Table 7 shows the intercorrelations between the AVID dimensions in Sample 1 and Table 8 shows the AVID scales that were significant predictors of each of the criteria in this sample. Results indicated that the AVID dimensions predicted a number of criteria very well but the strongest relationships were with motivation to lead (both affective and social-normative), OCB, and resilience. The multiple *R*s for these outcomes were all .30 or above and were consistent with previous research with the AVID (Nye et al., 2019). Across all of the outcomes, the AVID Human Relations, Management, and Physical Activity dimensions were the most consistent positive predictors. These results suggest that Soldiers who enjoy leading others, working in administration, and engaging in physical activity are more likely to be satisfied with and engaged in the Army. In contrast, the AVID Writing dimension was a significant negative predictor for most outcomes, indicating that Soldiers interested in writing were less engaged in the Army.

Table 8 also shows that the AVID dimensions were strong predictors of the overall performance composite we created by combining each of the individual criteria. The multiple *R* for predicting this outcome was .43. Again, the strongest positive predictors of this outcome were the AVID Human Relations, Management, and Physical Activity dimensions. In addition, the Writing dimension was also a substantial negative predictor of overall performance. These results illustrate the importance of assessing both interests that are associated with military occupations (e.g., Management and Physical Activity) and those that are not (e.g., Writing).

Table 7. ***Correlations Between the AVID Basic Interest Dimensions in Sample 1***

AVID Dimensions	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1. Combat	1.00															
2. Construction	**.21**	1.00														
3. Electronics	.05	**.19**	1.00													
4. Food Service	**-.20**	.02	-.03	1.00												
5. Human Relations	**-.18**	**-.18**	**-.15**	**.12**	1.00											
6. Information Tech.	**-.19**	**-.09**	**.46**	.03	.04	1.00										
7. Management	**.10**	-.04	**-.20**	-.01	**.33**	**-.08**	1.00									
8. Mathematics	**-.21**	-.03	**.20**	.00	**.10**	**.32**	.05	1.00								
9. Mechanical	**.35**	**.43**	**.46**	**-.09**	**-.23**	.01	**-.07**	**-.06**	1.00							
10. Medical Services	**-.18**	**-.19**	-.01	**.09**	**.17**	**.13**	-.01	**.09**	**-.16**	1.00						
11. Office Work	**-.40**	**-.21**	-.04	**.14**	**.27**	**.27**	**.16**	**.25**	**-.28**	**.13**	1.00					
12. Outdoors	**.09**	**.39**	-.02	**.10**	**-.21**	**-.21**	-.05	**-.10**	**.23**	**-.19**	**-.17**	1.00				
13. Physical Activity	**.29**	**.14**	**-.13**	-.05	-.01	**-.18**	**.14**	**-.11**	**.08**	**-.10**	**-.21**	**.06**	1.00			
14. Protection	**.58**	**.19**	.01	**-.18**	**-.11**	**-.18**	**.07**	**-.20**	**.27**	**-.07**	**-.30**	**.11**	**.26**	1.00		
15. Teaching	**-.21**	**-.18**	**-.19**	**.16**	**.38**	.03	**.21**	**.19**	**-.26**	**.21**	**.20**	**-.12**	.04	**-.16**	1.00	
16. Writing	**-.31**	**-.15**	-.03	**.16**	**.18**	**.20**	**.07**	**.19**	**-.23**	**.14**	**.30**	**-.06**	**-.14**	**-.26**	**.34**	1.00

Note: n = 1,549. Bolded values are significant, $p < .05$.

Table 8. ***Standardized Regression Weights for the AVID Dimensions Predicting Each Criterion in Sample 1***

AVID Dimensions	MOS Fit	Army Fit	Aff. Comm.	MOS Sat.	OCB	Resil.	Reenlist. Intent	Career Intent	MTL Aff.	MTL Non-calc.	MTL Soc-Norm	APFT	CSB	Overall Perform.
Combat														
Construction				-.05	-.07	-.09					-.06		.06	-.06
Electronics		.08				.07								
Food Service	.11			.10			.07	.06						
Human Relations	.06	.10	.11	.09	.12	.09	.10	.10			.08		-.13	.13
Information Tech.	-.05	-.07		-.08										
Management	.10	.15	.10	.09	.28	.15	.14	.15	.35	.18	.25		-.09	.27
Mathematics										-.06		.09	.05	
Mechanical		-.09							.07	-.07		-.09	.07	
Medical Services	-.08	-.05	-.06	-.07			-.07							-.06
Office Work	.08			.09				.06						
Outdoors			.06		.07					.10	.06			.06
Physical Activity	.10	.11	.06	.13	.05	.19	.11	.11	.05		.06	.29		.17
Protection		.07	.10						.09		.08			
Teaching	.07		.06		.06					.08	.10		-.09	
Writing		-.06		-.07	-.05	-.08	-.09	-.08	-.05	-.10	-.14		.14	-.11
Multiple *R*	.25	.28	.26	.27	.36	.31	.26	.26	.41	.27	.37	.30	.27	.43
Adjusted Multiple *R*	.23	.26	.24	.25	.35	.30	.24	.24	.39	.25	.35	.28	.25	.42

Note: Values in this table represent significant regression weights, $p < .10$. The sample size for these analyses was 1,549. MTL = Motivation to Lead; MOS Sat. = MOS Satisfaction; OCB = Organizational Citizenship Behavior and Leadership; CSB = Counterproductive Soldier Behavior.

Figure 1 illustrates the practical importance of the relationships between the AVID and several of the criteria assessed in this sample. We used the standardized regression weights for predicting overall performance from the analyses shown in Table 8 (last column) to calculate AVID composite scores for each individual. We then used these scores to plot the relationships between this AVID composite and several criteria. Figure 1 illustrates the relationships between the AVID composite scores and overall performance, motivation to lead (affective), OCB, and resilience. On the X-axes of these plots are the quintiles (i.e., data divided into 5 equal parts) for the AVID composite scores. The Y-axes provide the average scores on the criteria. To standardize these graphs, the outcomes were scaled to have a mean of 100 and a standard deviation of 20 and the Y-axes for these figures are scaled to range from the mean of the outcome variable +/- 1 standard deviation.

The graphs shown in Figure 1 indicate that individuals who scored higher on the AVID composite had higher overall performance scores, greater motivation to lead, engaged in more OCB, and were more resilient. In addition, for most of these outcomes, there was nearly a full standard deviation difference between the highest and lowest scoring groups on the AVID composite, indicating that the effects were substantial. Again, these results suggest strong relationships between the AVID scales and performance criteria in this sample.

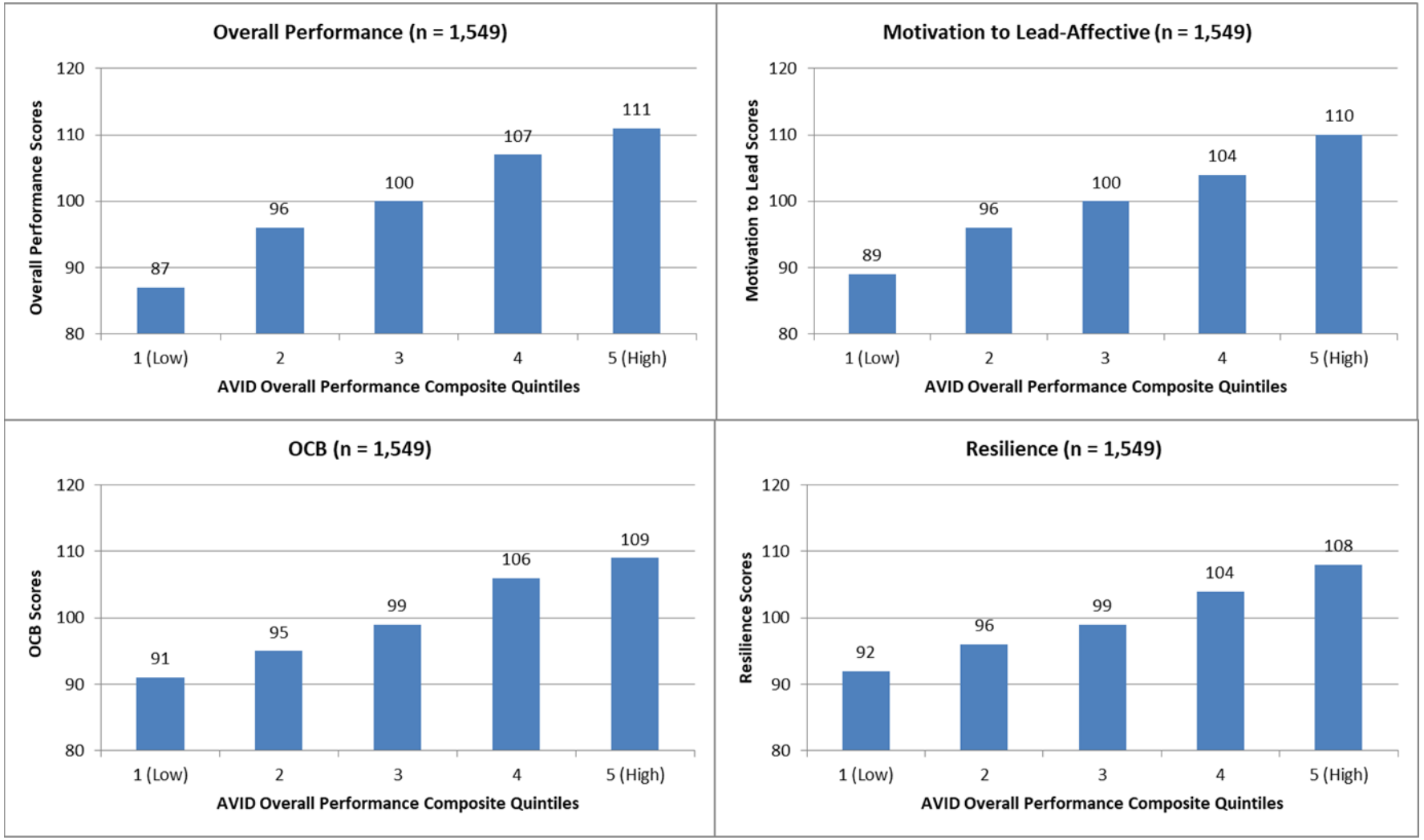

Figure 1. **AVID Composite Quintile Plots for Overall Performance, Motivation to Lead, OCB, and Resilience in Sample 1**

Next, we examined differences in the predictors of overall performance across MOS. Again, we examined composites of the AVID scales in the five largest MOS in this sample (i.e., 12B, 19D, 42A, 92A, and 92Y) as well as in a combined group of MOS in the 92 series. The results of these analyses are shown in Table 9. As shown here, the AVID scales that were significant predictors of overall performance varied across MOS. The Management scale was the most consistent predictor across all of these occupations and had the strongest weight in each MOS. The Protection dimension was also a consistent predictor in most cases. The one exception was for Human Resource Specialists (MOS 42A). This finding makes sense given that this MOS is likely the least closely associated with protective activities out of the MOS examined here. Physical Activity was also a significant predictor in four of the six groups we analyzed.

With the exception of the Management, Protection, and Physical Activity dimensions, the other predictors of overall performance varied across MOS. This suggests that the AVID dimensions that are relevant for each MOS can vary. As a result, the AVID scores may be useful for MOS assignment.

Table 9. ***MOS-Specific Prediction of Overall Performance in Sample 1***

	MOS					
AVID Dimensions	**Combat Engineers**	**Cavalry Scouts**	**Human Resource Specialists**	**Logistical Specialists**	**Unit Supply Specialists**	**Army Quartermaster Corps**
Combat			.15			
Construction					-.14	-.12
Electronics					.17	.12
Food Service						
Human Relations	.13				.22	.18
Information Tech.					-.14	
Management	.21	.33	.22	.31	.21	.24
Mathematics						
Mechanical						
Medical Services	-.15	-.14	-.12			
Office Work	-.17		.13			
Outdoors						
Physical Activity	.13	.15	.23	.18		
Protection	.22	.18		.15	.11	.11
Teaching					.16	.12
Writing					-.17	-.15
Multiple *R*	.53	.62	.46	.45	.48	.44
Adjusted Multiple *R*	.47	.58	.39	.35	.43	.41

Note: Values in this table represent significant regression weights, $p < .10$. Sample sizes were Combat Engineers $n = 222$; Cavalry Scouts $n = 232$; Human Resource Specialists $n = 223$; Logistical Specialists $n = 181$; Unit Supply Specialists $n = 296$; Quartermaster Corps. $n = 488$.

As described above, although a simple linear regression model has shown strong validity in past research (Van Iddekinge et al., 2011), this approach does not include interest scores for the MOS and, therefore, cannot effectively quantify interest fit. To address this issue, we tested a series of regression models predicting overall performance to identify the best operationalization of the match between Soldiers and their MOS. The results of these analyses are shown in Table 10. This table shows the multiple R, R^2, and adjusted (for capitalization on chance) R^2 for each of these models. Results indicated that adding the MOS ratings to the model improved the prediction of overall performance substantially ($\Delta R = .12$, $p < .05$). However, adding the interactions and quadratic terms for both individual scores and MOS ratings resulted in only negligible increases in the overall validity of the model. Therefore, subsequent analyses were conducted using regression models that included only the individual scores and the MOS ratings to examine the validity of interest fit. As demonstrated by Edwards (1993), this model is consistent with congruence indices that quantify the raw difference between individual and environment score profiles. However, the regression approach used here is more effective than examining simple differences between these profiles because this approach reduces the constraints on the relationships between individual scores, environment scores, and the criterion.

Table 10. ***Polynomial Regression Analyses Predicting Overall Performance in Sample 1***

Regression Model	Multiple R	R^2	Adjusted R^2	F Change	p-value
Individual interest scores	.42	.18	.17	19.79	.000
Individual + MOS interest scores	.54	.29	.27	13.99	.000
Individual + MOS interest scores + Interactions	.54	.30	.27	1.08	.370
Individual + MOS interest scores + Interactions + Squared individual scores	.56	.31	.28	2.18	.005
Individual + MOS interest scores + Interactions + Squared individual scores + Squared MOS scores	.57	.32	.29	1.73	.040

Note: n = 1,514.

Table 11 shows the standardized regression weights for the individual scores and MOS ratings that were significant predictors of overall performance in each MOS. The sample sizes for these analyses were slightly smaller than in Table 9 because they were based on only those individuals who had both AVID scores and MOS ratings. The results indicate that the AVID interest fit composites have substantial validity for predicting overall performance in each MOS. The multiple Rs ranged from .54 to .67 and the adjusted multiple Rs ranged from .44 to .59. In addition, the results indicated that both the individual AVID scores and the MOS ratings contributed to the prediction of this outcome. The predicted scores from these regression equations represent the fit between an individual Soldier and his or her MOS. As such, these equations can be used to identify the Soldiers that are the best fit for these MOS.

Table 11. ***Standardized Regression Weights for the MOS-Specific Fit Composites in Sample 1***

AVID Dimensions	Combat Engineers	Cavalry Scouts	Human Resource Specialists	Logistical Specialists	Unit Supply Specialists	Quarter-master Corps	Full Sample
Combat			.14	-.12			
Construction					-.11		-.05
Electronics							
Food Service							
Human Relations	.11				.14	.11	.07
Information Tech.					-.14		
Management	.19	.25	.24	.21	.16	.17	.22
Mathematics			.10				
Mechanical							
Medical Services		-.15	-.14	-.12			-.05
Office Work	-.11		.11	-.12			
Outdoors			.13				
Physical Activity	.16		.11	.13			.13
Protection	.21	.14		.16	.13	.13	.09
Teaching					.14		
Writing					-.17	-.11	-.07
Combat (MOS Ratings)							
Construction (MOS Ratings)			.18				
Electronics (MOS Ratings)	.10		-.15	-.12			
Food Service (MOS Ratings)		.10		-.18			
Hum. Relations (MOS Ratings)				.13	.11	.13	.09
Inform. Tech. (MOS Ratings)			-.15				
Management (MOS Ratings)		.19	.22	.15	.12	.13	.15
Mathematics (MOS Ratings)							
Mechanical (MOS Ratings)			.16		.13		
Med. Services (MOS Ratings)			-.13	.13			-.06
Office Work (MOS Ratings)	.12			.12	.19	.17	.19
Outdoors (MOS Ratings)			.13	-.11			-.06
Phys. Activity (MOS Ratings)	.16			.18	-.11		
Protection (MOS Ratings)				.18			
Teaching (MOS Ratings)							
Writing (MOS Ratings)						-.12	
Multiple *R*	.61	.67	.58	.59	.58	.54	.54
Adjusted Multiple *R*	.52	.59	.47	.44	.50	.49	.52

Note: Due to the relatively small sample sizes for the MOS-specific analyses, regression weights less than .10 have been removed to increase clarity. All significant regression weights in the full sample are reported, $p < .10$. Sample sizes were Combat Engineers $n = 215$; Cavalry Scouts $n = 225$; Human Resource Specialists $n = 212$; Logistical Specialists $n = 178$; Unit Supply Specialists $n = 287$; Quartermaster Corps. $n = 476$; Full sample $n = 1{,}514$.

To examine the differences between the AVID interest fit scores (i.e., the predicted scores from the weights shown in Table 11) across MOS, we used the standardized regression weights shown in Table 11 to calculate the fit between each individual in the sample and each of the five MOS we examined as well as the broader cluster of 92 series MOS. In other words, each Soldier in the sample had six predicted performance scores that represented their fit with each of these MOS groups. We then calculated the correlations between these predicted scores to quantify the similarities between them. These correlations are shown in Table 12.

The correlations presented in Table 12 suggest that the MOS-specific interest fit scores were moderately correlated. However, there were also a number of differences across MOS. In particular, the AVID composite estimated for Human Resource Specialists (MOS 42A) had correlations ranging from .35 to .66 across the other five groups. Although the correlations between the other MOS-specific composites were somewhat larger, they still indicated that there were substantial differences in the predictors of overall performance across occupations. In fact, the correlations between these composites are generally lower than the correlations between the Armed Services Vocational Aptitude Battery (ASVAB) Aptitude Area (AA) composites (Knapp & Kirkendall, 2018) or the TAPAS composites found in previous research (Nye et al., 2012). Combined, Tables 11 and 12 indicate that the AVID interest fit scores will have substantial validity for predicting overall performance and differential validity across MOS. As such, these results suggest that the AVID may be useful for MOS assignment.

Table 12. ***Correlations between the MOS-Specific Interest Fit Composites in Sample 1***

MOS	Combat Engineers	Cavalry Scouts	Human Resource Specialists	Logistical Specialists	Unit Supply Specialists	Quarter-master Corps
Combat Engineers	1.00					
Cavalry Scouts	.59	1.00				
Hum. Resource Specialists	.44	.66	1.00			
Logistical Specialists	.68	.64	.58	1.00		
Unit Supply Specialists	.52	.61	.35	.57	1.00	
Quartermaster Corps	.58	.67	.46	.72	.88	1.00

Note: Sample sizes ranged from 1,490 to 1,514. All correlations are significant.

Finally, we also compared the MOS-specific interest fit composites shown in Table 11 to the MOS-specific AVID composites reported by Nye et al. (2019). Nye et al. examined six different MOS groups including: Infantry (11B), Military Police (31B), Combat Medics (68W), Motor Transport Operators (88M), and Wheeled Vehicle Mechanics (91B) as well as the broader group of 68 series MOS (i.e., Medical and Emergency occupations). Given that Nye et al. used the same version of AVID administered in Sample 1, we calculated the composites reported in that research for each individual in Sample 1. These analyses allow us to compare across a broader range of MOS to determine how similar the AVID composites are across occupations. The correlations between these composites are shown in Table 13.

Table 13 shows that there were both similarities and differences between the MOS-specific AVID composites found by Nye et al. (2019) and the composites found in the present

research. For example, the composites for Military Police (31B), Combat Medics (68W), and Motor Transport Operators (88M) were all strongly correlated with the composite for Logistical Specialists (92A; R = .79, .75, and .87, respectively). In addition, the composite for the Quartermaster Corps (92 series MOS) had some of the strongest correlations with the MOS-specific composites estimated by Nye et al. In contrast, the correlations between the composites estimated for Infantry (11B) and all of the MOS examined in the current research were relatively small, ranging from .07 (Quartermaster Corps) to .52 (Cavalry Scouts). Similarly, many of the correlations with the composite for Wheeled Vehicle Mechanics were also relatively low. Again, these results demonstrate that there are both similarities and differences in the predictors of overall performance across MOS and suggest that the AVID may be useful for MOS assignment.

Table 13. ***Correlations between the MOS-Specific Interest Fit Composites Reported by Nye et al. (2019) and in Sample 1***

	MOS Examined by Nye et al. (2019)					
MOS in Sample 1	**Infantry**	**Military Police**	**Combat Medics**	**Motor Transport Operators**	**Wheeled Vehicle Mechanics**	**Medical and Emergency Occupations**
Combat Engineers	.36	.58	.58	.76	.63	.43
Cavalry Scouts	.52	.66	.71	.60	.41	.66
Hum. Resource Specialists	.40	.67	.44	.54	.30	.59
Logistical Specialists	.37	.79	.75	.87	.49	.73
Unit Supply Specialists	.20	.39	.69	.70	.39	.52
Quartermaster Corps	.07	.51	.74	.83	.51	.65

Note: Sample sizes ranged from 1,493 to 1,517. All correlations are significant.

Sample 2

Table 14 shows the intercorrelations between the AVID dimensions in Sample 2 and Table 15 shows the AVID dimensions that were significant predictors of each of the criteria in this sample. As shown in this table, the AVID scales predicted a number of criteria very well. Across all of the outcomes, the AVID Human Relations, Management, and Physical Activity dimensions were the most consistent predictors. Results also indicated that the AVID dimensions had the strongest relationships with motivation to lead (both affective and social-normative) and OCB. The multiple Rs for these outcomes were all .44 or above. Similarly, the AVID dimensions also predicted overall performance with a multiple R of .50 and an adjusted (for capitalization on chance) multiple R of .49. Although the strongest predictors of this outcome were still the Human Relations, Management, and Physical Activity dimensions, a number of other predictors (both positive and negative) were also included. These results are largely consistent with the results in Sample 1.

Table 14. ***Correlations between the AVID Basic Interest Dimensions in Sample 2***

Variables	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1. Combat	1.00															
2. Construction	**.21**	1.00														
3. Electronics	.01	**.08**	1.00													
4. Food Service	**-.14**	.02	**-.09**	1.00												
5. Human Relations	**-.13**	**-.15**	**-.11**	**.08**	1.00											
6. Information Tech.	**-.15**	**-.18**	**.56**	-.03	.01	1.00										
7. Management	**.08**	.01	**-.09**	-.05	**.37**	-.05	1.00									
8. Mathematics	**-.20**	-.05	**.31**	-.03	**.08**	**.40**	.06	1.00								
9. Mechanical	**.30**	**.41**	**.37**	**-.10**	**-.18**	-.05	.00	**-.08**	1.00							
10. Medical Services	**-.16**	**-.17**	**-.08**	**.13**	**.23**	**.08**	.03	**.11**	**-.21**	1.00						
11. Office Work	**-.23**	**-.20**	.03	.04	**.25**	**.27**	**.24**	**.29**	**-.27**	**.13**	1.00					
12. Outdoors	**.10**	**.44**	**-.09**	.06	**-.16**	**-.30**	-.01	**-.12**	**.26**	-.06	**-.17**	1.00				
13. Physical Activity	**.28**	**.23**	**-.14**	-.04	-.03	**-.20**	**.14**	**-.13**	**.21**	-.01	**-.22**	**.12**	1.00			
14. Protection	**.61**	**.20**	**-.08**	**-.14**	-.01	**-.22**	**.10**	**-.27**	**.27**	-.02	**-.15**	**.18**	**.27**	1.00		
15. Teaching	**-.25**	**-.19**	**-.13**	**.10**	**.40**	.05	**.21**	**.24**	**-.28**	**.21**	**.19**	-.07	-.03	**-.17**	1.00	
16. Writing	**-.25**	**-.18**	.01	**.10**	**.22**	**.25**	**.08**	**.23**	**-.29**	**.14**	**.26**	**-.09**	**-.15**	**-.25**	**.30**	1.00

Note: $n = 936$. Bolded values are significant, $p < .05$.

Table 15. ***Standardized Regression Weights for the AVID Dimensions Predicting Each Criterion in Sample 2***

AVID Dimensions	MOS Fit	Army Fit	Aff. Comm.	MOS Sat.	OCB	Resil.	Reenlist. Intent	Career Intent	MTL Aff.	MTL Non-calc.	MTL Soc-Norm	APFT	Disc. Incident[a]	CSB	Overall Perform.
Combat		.12	.11				.12	.12							.09
Construction			-.07		-.06		-.06	-.07							-.07
Electronics															
Food Service					-.08						-.06				
Human Relations	.10	.16	.13	.13	.20	.19	.08	.08	.15	.12				-.15	.21
Information Tech.		.09				.08					.09			-.13	.07
Management		.08	.07		.24	.12	.07	.08	.44	.16	.30	.11	-.25	-.08	.23
Mathematics															
Mechanical	.10			.09					.07	-.08					
Medical Services	-.10	.08	.07				.10	.11						-.10	.06
Office Work		-.07			-.07						-.07				
Outdoors	.07				.07	.06									
Physical Activity	.07	.11	.09		.10	.22	.18	.14	.11		.10	.27	-.19		.19
Protection		.07	.12		.07					.13	.09			-.09	.08
Teaching	.07				.07					.07	.06				.06
Writing	-.06	-.11	-.08	-.08			-.08		-.05	-.07				.12	-.11
Multiple *R*	.28	.35	.33	.20	.44	.38	.30	.28	.56	.32	.47	.30	.18	.27	.50
Adjusted Multiple *R*	.24	.33	.31	.15	.42	.36	.28	.25	.55	.29	.45	.28	--	.24	.49

Note: Values in this table represent significant regression weights, $p < .10$. $n = 936$. MTL = Motivation to Lead; MOS Sat. = MOS Satisfaction; OCB = Organizational Citizenship Behavior and Leadership; CSB = Counterproductive Soldier Behavior. [a] Because the Disciplinary Incidents variable was dichotomized to account for low base rates, these analyses are based on a logistic regression. Therefore, an adjusted multiple *R* could not be calculated. In addition, the regression weights presented for this outcome are the unstandardized regression weights.

Figure 2 illustrates the practical importance of the relationships between the AVID and several of the criteria assessed in Sample 2. Similar to the analyses in Sample 1, we used the standardized regression weights from the analyses shown in Table 15 for predicting overall performance to calculate AVID composite scores for each individual. We then used these scores to plot the relationships between this AVID composite and several criteria in Sample 2. Figure 2 illustrates the relationships between the AVID composite scores and overall performance, motivation to lead (affective), OCB, and resilience. Consistent with Figure 1, the X-axes of these plots are the quintiles for the scores on the AVID composite and the Y-axes provide the average scores on the criteria. Again, the outcomes were scaled to have a mean of 100 and a standard deviation of 20 and the Y-axes for these figures are scaled to range from the mean of the outcome variable +/- 1 standard deviation.

The graphs shown in Figure 2 indicate that individuals who scored higher on the AVID composite had higher overall performance scores, greater motivation to lead, engaged in more OCBs, and were more resilient. In addition, for all of these outcomes, there was at least a full standard deviation difference between the highest and lowest scoring groups on the AVID composite, indicating that the effects were substantial. Again, these results suggest strong relationships between the AVID dimensions and the criteria in this sample of Soldiers.

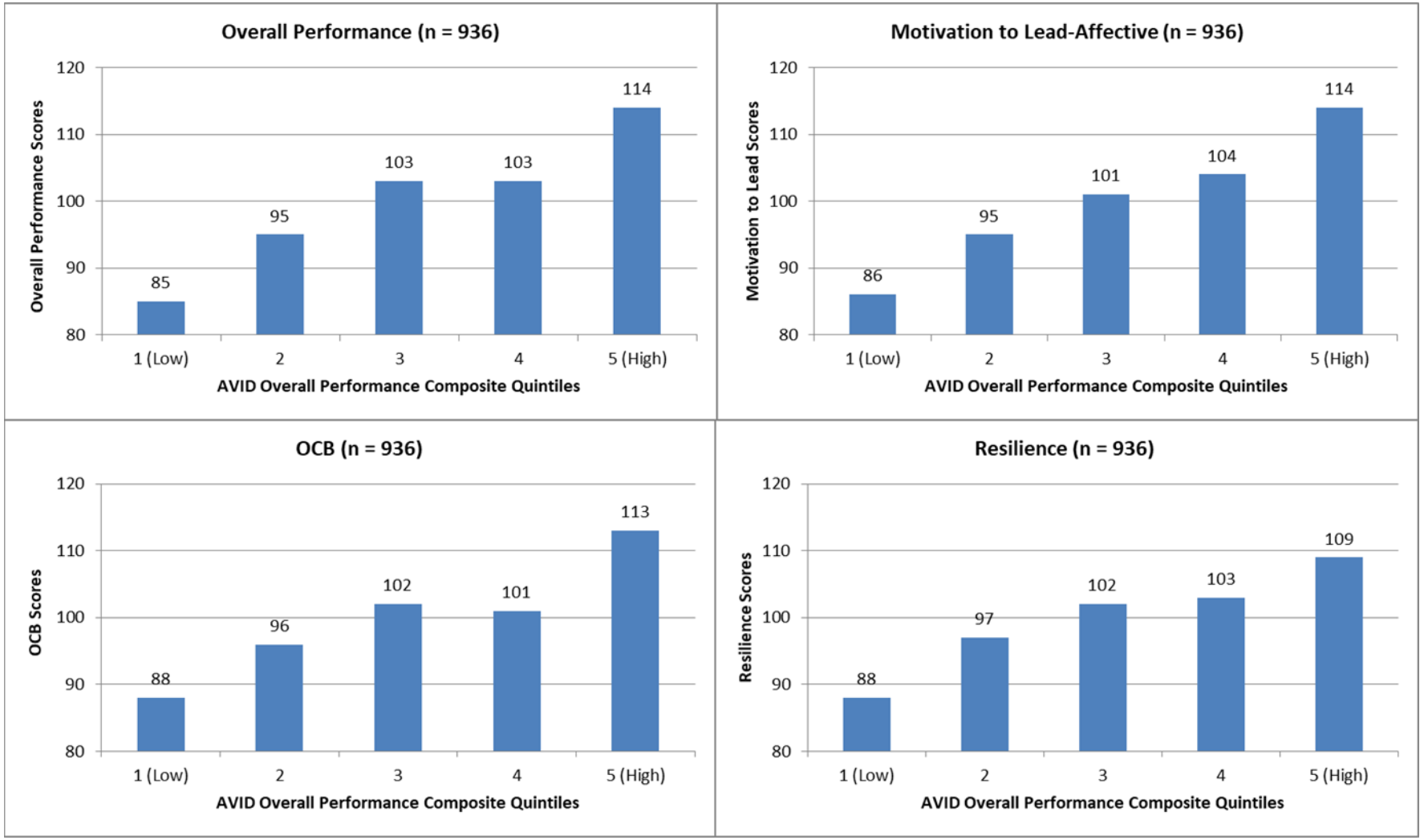

Figure 2. **AVID Composite Quintile Plots for Overall Performance, Motivation to Lead, OCB, and Resilience in Sample 2**

As described above, although the research with Sample 1 was designed to focus on five high-density MOS, Sample 2 included a broader range of MOS but did not have large sample sizes for any of these occupations. Therefore, we were unable to examine MOS-specific prediction in this sample. However, we were still able to examine the fit between Soldiers and their MOS using polynomial regression. To do so, we conducted the same hierarchical analyses examined in Sample 1 in which we added the AVID interest scores in Step 1 and the MOS ratings, interactions between the individual scores and MOS ratings, and the quadratic terms for both individual scores and MOS ratings in subsequent steps. The results of these analyses are shown in Table 16. Consistent with the results in Sample 1, adding the MOS ratings improved the prediction of overall performance. However, adding the interactions and the quadratic terms for individual and MOS ratings resulted in a negligible increase in the multiple *R* and adjusted R^2. Nevertheless, combining the individual interest scores and MOS ratings results in substantial validity for predicting overall performance in this sample. The standardized regression weights for the model with both individual scores and MOS ratings are included in Table 17.

Table 16. ***Polynomial Regression Analyses Predicting Overall Performance in Sample 2***

Regression Model	Multiple *R*	R^2	Adjusted R^2	*F* Change	*p*-value
Individual interest scores	.50	.25	.24	19.36	.000
Individual + MOS interest scores	.55	.30	.27	3.55	.000
Individual + MOS interest scores + Interactions	.57	.32	.29	2.08	.008
Individual + MOS interest scores + Interactions + Squared individual scores	.58	.33	.29	1.00	.454
Individual + MOS interest scores + Interactions + Squared individual scores + Squared MOS scores	.60	.36	.29	1.70	.042

Note: $n = 936$.

Table 17. ***Standardized Regression Weights for the Predictors in the AVID Interest Fit Composite in Sample 2***

Variables	Full Sample
Combat	.09
Construction	-.06
Electronics	
Food Service	
Human Relations	.20
Information Tech.	.07
Management	.21
Mathematics	
Mechanical	
Medical Services	.06
Office Work	
Outdoors	
Physical Activity	.19
Protection	.10
Teaching	
Writing	-.10
Combat (MOS Ratings)	
Construction (MOS Ratings)	
Electronics (MOS Ratings)	
Food Service (MOS Ratings)	
Human Relations (MOS Ratings)	-.07
Information Tech. (MOS Ratings)	
Management (MOS Ratings)	.09
Mathematics (MOS Ratings)	
Mechanical (MOS Ratings)	
Medical Services (MOS Ratings)	
Office Work (MOS Ratings)	
Outdoors (MOS Ratings)	
Physical Activity (MOS Ratings)	
Protection (MOS Ratings)	-.07
Teaching (MOS Ratings)	.07
Writing (MOS Ratings)	
Multiple *R*	.55
Adjusted Multiple *R*	.52

Note: Values in this table represent significant regression weights, $p < .10$. $n = 936$.

Sample 3

Table 18 shows the intercorrelations between the AVID dimensions assessed in Sample 3. Again, the version of AVID that was administered in this sample contained a different set of AVID dimensions than in Samples 1 and 2. The goal of this sample was to collect data on additional AVID dimensions that had not been examined in previous research (i.e., Finance, Personal Service, Sales, and Science). Table 19 shows the AVID scales that were significant predictors of each of the criteria in this sample. As found in previous samples, the AVID dimensions predicted all of these criteria very well and the Human Relations, Management, and Physical Activity dimensions were among the most consistent predictors across criteria. The four new dimensions included in this version of the AVID were also significant predictors of several criteria. The Finance dimension was perhaps the most relevant of the new dimensions in that it was a relatively strong predictor of several criteria, including the overall performance criterion. However, this dimension was a negative predictor for nearly all of these outcomes, suggesting that Soldiers who enjoy financial activities may not fit particularly well in the Army. These results provide additional evidence for the validity of the AVID and illustrate the importance of measuring interest dimensions that are both positively and negatively related to a particular occupation.

Table 18. ***Correlations between the AVID Basic Interest Dimensions in Sample 3***

Variables	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1. Combat	1.00															
2. Construction	**.31**	1.00														
3. Finance	**-.34**	**-.19**	1.00													
4. Human Relations	**-.16**	**-.25**	**.24**	1.00												
5. Information Tech.	-.07	-.03	**.21**	-.02	1.00											
6. Management	.11	-.06	**.19**	**.38**	.06	1.00										
7. Mathematics	**-.26**	**-.13**	**.36**	.09	**.26**	.09	1.00									
8. Mechanical	**.43**	**.55**	**-.27**	**-.24**	.05	-.09	-.11	1.00								
9. Office Work	**-.36**	**-.23**	**.39**	**.23**	**.23**	**.20**	**.23**	**-.25**	1.00							
10. Personal Service	**-.33**	-.06	**.28**	**.21**	-.01	.04	.03	**-.22**	**.30**	1.00						
11. Physical Activity	**.32**	**.28**	**-.12**	-.02	**-.14**	**.12**	**-.11**	**.29**	**-.24**	**-.15**	1.00					
12. Protection	**.61**	**.26**	**-.27**	-.06	-.07	**.14**	**-.22**	**.30**	**-.23**	**-.20**	**.34**	1.00				
13. Sales	**-.21**	-.06	**.41**	**.17**	.07	**.16**	**.17**	**-.12**	**.15**	**.22**	.00	**-.12**	1.00			
14. Science	-.07	**-.10**	.05	.01	.24	-.04	**.34**	.01	.01	-.04	**-.11**	-.07	-.01	1.00		
15. Teaching	**-.20**	**-.24**	**.12**	**.37**	-.03	**.20**	**.20**	**-.23**	.09	**.10**	-.06	**-.17**	.04	**.17**	1.00	
16. Writing	**-.24**	**-.20**	**.15**	**.17**	**.13**	.07	**.11**	**-.22**	**.10**	**.17**	**-.18**	**-.20**	**.10**	**.24**	**.35**	1.00

Note: $n = 737$. Bolded values are significant, $p < .05$.

Table 19. ***Standardized Regression Weights for the AVID Dimensions Predicting Each Criterion in Sample 3***

AVID Dimensions	MOS Fit	Army Fit	Aff. Comm.	MOS Sat.	OCB	Resil.	Reenlist. Intent	Career Intent	MTL Aff.	MTL Non-calc.	MTL Soc-Norm	APFT	Disc. Incident[a]	CSB	Overall Perform.
Combat		.09						.09		.12					
Construction							-.09								
Finance		-.10								-.13	-.07		-.41		-.07
Human Relations	.10	.09	.08	.08	.17	.13	.08	.07	.12	.13	.17			-.12	.18
Information Tech.							.07	.07							
Management			.12		.25	.22	.07	.09	.40	.13	.31			-.09	.24
Mathematics											-.08				
Mechanical	.10														
Office Work	-.10							.08						-.08	
Personal Service				.08						-.12	-.09		.34		
Physical Activity	.11	.16	.08	.14	.12	.26	.21	.19	.14		.10	.24	-.30	-.08	.25
Protection															
Sales						.07		-.07	.09			.07			
Science	-.09			-.09							.06				
Teaching					.09					.10	.08				
Writing							-.07				-.11			.17	-.07
Multiple *R*	.32	.25	.26	.22	.42	.42	.30	.29	.50	.34	.46	.28	.24	.27	.48
Adjusted Multiple *R*	.28	.20	.21	.17	.40	.39	.26	.25	.48	.31	.44	.24	--	.23	.46

Note: Values in this table represent significant regression weights, $p < .10$. $n = 737$. MTL = Motivation to Lead; MOS Sat. = MOS Satisfaction; OCB = Organizational Citizenship Behavior and Leadership; CSB = Counterproductive Soldier Behavior. [a] Because the Disciplinary Incidents variable was dichotomized to account for low base rates, these analyses are based on a logistic regression. Therefore, an adjusted multiple *R* could not be calculated. In addition, the regression weights presented for this outcome are the unstandardized regression weights.

Figure 3 illustrates the practical importance of the relationships between the AVID and several of the criteria assessed in Sample 3. Similar to the analyses in Samples 1 and 2, we used the standardized regression weights from the analyses shown in Table 19 for predicting overall performance to calculate AVID composite scores for each individual. We then used these scores to plot the relationships between this AVID composite and several criteria in Sample 3. Consistent with the corresponding analyses in Samples 1 and 2, the X-axes of these plots are the quintiles for the scores on the AVID composite and the Y-axes provide the average scores on the criteria. Again, the outcomes were scaled to have a mean of 100 and a standard deviation of 20 and the Y-axes for these figures are scaled to range from the mean of the outcome variable +/- 1 standard deviation.

The graphs shown in Figure 3 indicate that individuals who scored higher on the AVID composite had higher overall performance scores, greater motivation to lead, engaged in more OCBs, and were more resilient. In addition, for all of these outcomes, there was at least a full standard deviation difference between the highest and lowest scoring groups on the AVID composite, indicating that the effects were substantial. Despite including a slightly different set of AVID dimensions, these results are consistent with the results in previous samples and suggest strong relationships between the AVID and several criteria in the Army.

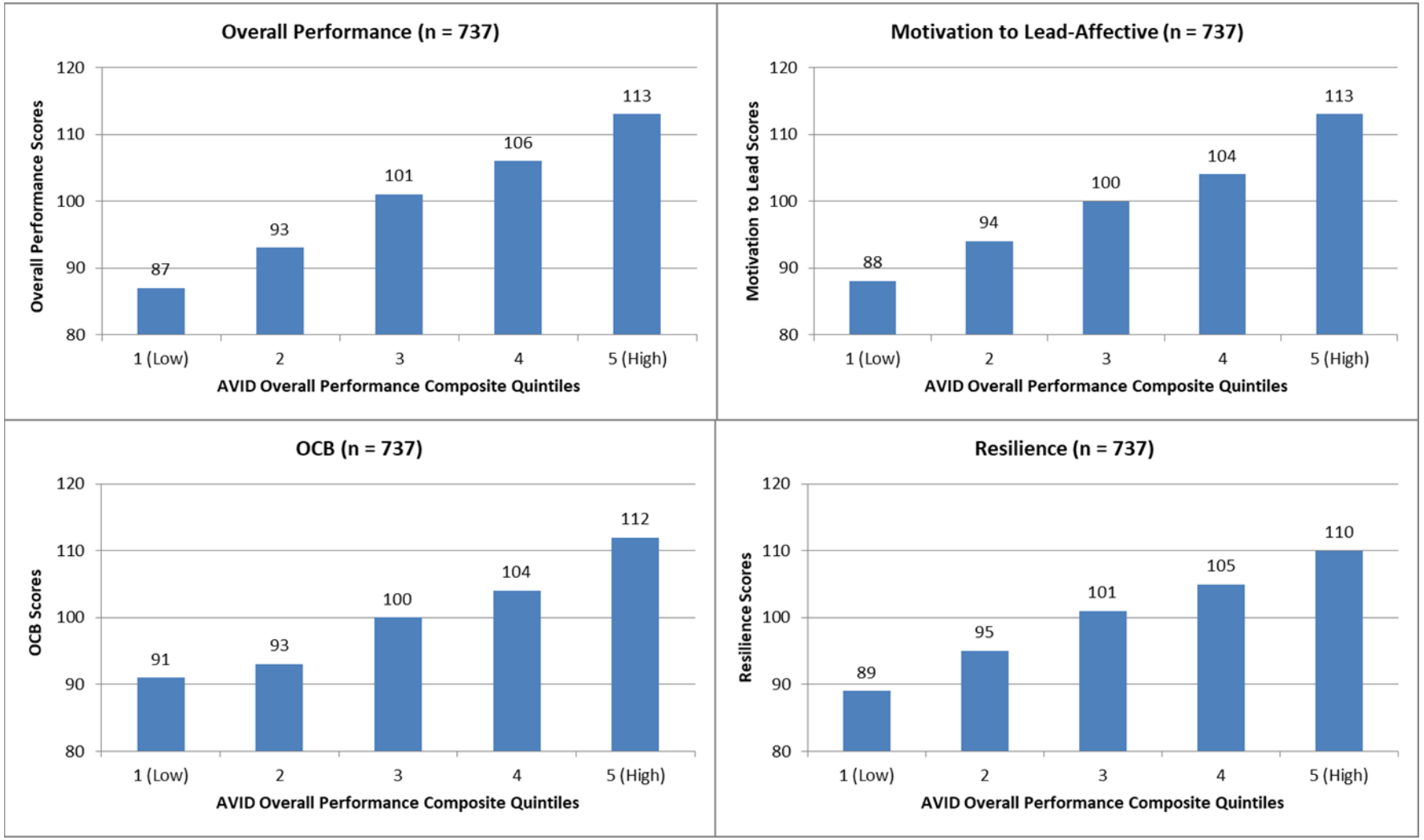

Figure 3. **AVID Composite Quintile Plots for Overall Performance, Motivation to Lead, OCB, and Resilience in Sample 3**

Similar to Sample 2, Sample 3 did not target specific MOS and instead included a broad range of MOS. Therefore, we were unable to examine MOS-specific prediction in this sample but did examine interest fit using polynomial regression. In this sample, we used the same hierarchical regression approach described in Sample 2 and the results are shown in Table 20. As found in previous samples, adding the MOS ratings significantly improved the prediction of overall performance but adding interactions and quadratic terms did not. Therefore, we only focused on the model that included both individual scores and MOS ratings. The multiple *R* for this model was .52 and the adjusted R^2 was .24. The standardized regression weights for this model are reported in Table 21.

Table 20. ***Polynomial Regression Analyses Predicting Overall Performance in Sample 3***

Regression Model	Multiple *R*	R^2	Adjusted R^2	*F* Change	*p*-value
Individual interest scores	.48	.23	.21	13.26	.000
Individual + MOS interest scores	.52	.27	.24	2.42	.000
Individual + MOS interest scores + Interactions	.53	.28	.23	.51	.945
Individual + MOS interest scores + Interactions + Squared individual scores	.55	.30	.23	1.31	.183
Individual + MOS interest scores + Interactions + Squared individual scores + Squared MOS scores	.57	.32	.24	1.43	.122

Note: $n = 735$.

Table 21. ***Significant Predictors of the AVID Interest Fit Composite in Sample 3***

Variables	Full Sample
Combat	.09
Construction	
Finance	-.07
Human Relations	.16
Information Tech.	
Management	.21
Mathematics	
Mechanical	
Office Work	
Personal Service	
Physical Activity	.23
Protection	
Sales	
Science	
Teaching	
Writing	-.08
Combat (MOS Ratings)	-.09
Construction (MOS Ratings)	
Finance (MOS Ratings)	
Human Relations (MOS Ratings)	
Information Tech. (MOS Ratings)	
Management (MOS Ratings)	.14
Mathematics (MOS Ratings)	
Mechanical (MOS Ratings)	
Office Work (MOS Ratings)	
Personal Service (MOS Ratings)	
Physical Activity (MOS Ratings)	
Protection (MOS Ratings)	
Sales (MOS Ratings)	
Science (MOS Ratings)	
Teaching (MOS Ratings)	
Writing (MOS Ratings)	
Multiple *R*	.52
Adjusted Multiple *R*	.49

Note: Values in this table represent significant regression weights, $p < .10$. $n = 735$.

Sample 4

As noted above, rather than taking a broad sample of MOS, Sample 4 consisted of a narrower sample of cyber occupations (e.g., Cyber Operations Specialists; 17C). However, due to the relatively small sample size for this group, there is likely to be a lot of error in these analyses. Therefore, our analyses in this sample focused primarily on simple linear regression models with only AVID included because calculating the full polynomial regression models estimated in the previous samples would require a total of 80 predictors in the model (i.e., including interactions and higher-order terms), which is nearly as many predictors as Soldiers in the sample ($N = 100$). Therefore, the results reported for this sample are only preliminary and should be interpreted with caution. Nevertheless, they do provide a rough estimate of the validity of the AVID in cyber occupations.

Table 22 shows the intercorrelations between the AVID dimensions assessed in Sample 4. It is worth noting that some of the correlations in this sample were substantially different than the correlations in the other samples. For example, the correlation between Writing and Management was .25 in this sample compared to .07 in Sample 1. Similarly, the correlation between Mathematics and Information Technology was .47 in this sample compared with .09 in Sample 3. These differences and others could be at least partially due to the relatively small size of this sample, which can result in substantial sampling error.

Table 23 shows the AVID scales that were significant predictors of each of the criteria in this sample. Not surprisingly, given that this was a sample of cyber operators, the Information Technology dimension was a significant predictor of MOS fit and satisfaction. However, this dimension also had several negative relationships with other criteria, including Army fit and reenlistment intentions. This suggests that Soldiers with interest in technology are a good fit for cyber occupations but do not feel that they fit well in the Army more broadly. Consistent with the other samples, the Management dimension was also an important predictor of several criteria. The other predictors varied across outcomes. However, the overall validities of the AVID dimensions were substantial for all criteria, with multiple *R*s ranging from .46 to .57. Again, it is important to be cautious when interpreting these results given the small sample size but they do provide preliminary evidence for the validity of the AVID in cyber occupations.

Table 22. Correlations between the AVID Basic Interest Dimensions in Sample 4

Variables	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1. Combat	1.00															
2. Construction	.23	1.00														
3. Electronics	.09	.17	1.00													
4. Food Service	-.13	.11	-.17	1.00												
5. Human Relations	**-.27**	-.11	**-.22**	.25	1.00											
6. Information Tech.	-.12	-.11	**.49**	-.02	-.06	1.00										
7. Management	-.08	.02	-.20	.14	**.55**	-.11	1.00									
8. Mathematics	-.02	-.14	**.44**	-.10	-.01	**.47**	-.17	1.00								
9. Mechanical	**.32**	**.39**	**.32**	-.02	-.17	.05	-.14	.01	1.00							
10. Medical Services	.03	-.03	-.10	**.28**	**.25**	.02	.09	-.07	-.08	1.00						
11. Office Work	**-.23**	-.02	.08	.08	.10	.17	.09	.20	-.15	-.02	1.00					
12. Outdoors	.05	**.53**	.02	.03	.03	**-.24**	.06	-.11	**.26**	.19	-.02	1.00				
13. Physical Activity	.18	.08	-.17	-.01	.00	**-.39**	.17	**-.24**	-.02	.00	-.11	.13	1.00			
14. Protection	**.53**	.10	.00	**-.33**	-.01	-.07	-.03	-.05	.15	.19	-.04	**.25**	.13	1.00		
15. Teaching	**-.27**	-.18	-.13	.06	**.42**	.19	**.23**	.16	**-.30**	.19	.07	-.15	-.11	.02	1.00	
16. Writing	-.20	**-.21**	-.11	.02	**.32**	.08	**.25**	-.01	-.13	.20	**.29**	-.03	-.19	-.05	**.24**	1.00

Note: $n = 99$. Bolded values are significant, $p < .05$.

Table 23. Standardized Regression Weights for the AVID Dimensions Predicting Each Criterion in Sample 4

AVID Dimensions	MOS Fit	Army Fit	Affective Commit.	MOS Sat.	OCB	Reenlist. Intentions	Career Intention	APFT
Combat	.18	.30		.37			.14	
Construction	-.11					.20	.12	
Electronics				.19	.14			.22
Food Service							-.10	-.21
Human Relations	-.12			.18		.12	.18	-.15
Information Tech.	.45	-.31	-.19	.10		-.38	-.28	
Management		.18	.22	.12	.33	.19	.12	.18
Mathematics	-.11				.12			-.29
Mechanical			.16	-.15	.11			-.23
Medical Services			-.27	-.13	-.21		-.17	
Office Work			-.22		-.16			.14
Outdoor		.10				-.11		
Physical Activity						-.17		.21
Protection	-.15	-.23	-.11	-.14			-.21	
Teaching		.28	.15		.25	.31	.24	
Writing				-.14	.16		-.17	.10
Multiple *R*	.50	.49	.51	.46	.57	.55	.54	.54
Adjusted Multiple *R*	.32	.31	.35	.25	.44	.40	.39	.39

Note: Values in this table represent significant regression weights, $p < .10$ Sample sizes ranged from 97 (APFT) to 100 (OCB). MOS Sat. = MOS Satisfaction; OCB = Organizational Citizenship Behavior and Leadership; APFT = Army Physical Fitness Test.

SUMMARY AND CONCLUSIONS

The AVID was developed to measure basic interest dimensions that are relevant to military occupations, to be flexible enough to differentiate between occupations, and to predict the attitudes and performance of Soldiers on the job. As a result, past research has demonstrated the validity of the AVID for predicting important military outcomes both across MOS and within-specific occupations (Nye et al., 2019). The goal of the current research was to extend that work and to examine the potential validity of the AVID in a different set of MOS. In addition, a second goal of this research was to examine a broader range of AVID dimensions than have been examined in the past. The results of this research indicated that the AVID can have substantial validity for predicting various outcomes across four samples of Active-Duty Soldiers and diverse occupations ranging from Human Resource Specialists (42A) to cyber operators (e.g., Cyber Operations Specialists; 17C). These findings and the overall validity of the AVID are consistent with previous research on this assessment (Nye et al., 2019) and with the broader interest literature (Nye et al., 2012, 2017; Van Iddekinge et al., 2011).

An important finding in the present research is that the validity of the AVID was larger within specific MOS than it was across all MOS. In other words, the AVID dimensions that predicted performance differed slightly in each occupation, indicating that the AVID may be useful for informing MOS assignment decisions. In addition, the results also demonstrated that calculating the fit between individuals and their MOS by including scores for both in a regression model could improve the prediction of overall performance. This finding is consistent with recommendations and past research in the person-organization fit literature (Edwards, 1993; Nye et al., 2018). Finally, when comparing the interest fit composites estimated in the six MOS groups examined in the present research and the six MOS groups examined by Nye et al. (2019), the correlations between these composites ranged from .06 to .87. In other words, there was substantial variability in the composites estimated for these 10 MOS and two job families (i.e., MOS series). Again, these results provide additional support for the utility of the AVID when making MOS assignment decisions.

The magnitudes of the relationships found in the current research are comparable to previous findings in different MOS and with other noncognitive assessments. The multiple Rs presented by Nye et al. (2019) for the AVID ranged from .14 to .51, with some variation across MOS. Similarly, research on the TAPAS has found multiple Rs ranging from .19 to .55 under various conditions and in different MOS (e.g., Horgen et al., 2013; Nye, Beal, Drasgow, Dressel, White, & Stark, 2014; Nye et al., 2012). For comparison, the multiple Rs found in the present research ranged from .18 to .62 for the AVID dimensions alone. However, as described above, the validity of the AVID was even stronger when considering the fit between individuals and their MOS. Although we were not able to examine incremental validity in the present research, the results presented here suggest that the AVID may be able to add to existing predictors of performance, given the conceptual differences between vocational interests and other predictors used by the Army (e.g., cognitive ability and personality). In addition, combining the full range of predictors may help to improve the accuracy of the assignment process by aligning applicants with the MOS in which they are most likely to be successful. Still, more research is needed to examine the effects of combining these assessments on the prediction of outcomes and on the assignment process.

Despite the promising results found for the AVID, more research is needed to evaluate its use in other contexts. For example, the results presented here focused on relatively few military occupations and specialties. Therefore, more research is needed to examine the validity of the AVID in a broader range of MOS. Similarly, additional research is needed to identify the interest profiles for other MOS as well. In the current work, the interest profiles for each MOS were obtained by asking Soldiers to rate their MOS on each of the AVID dimensions at the same time that they provided their interest scores. This approach allowed us to calculate interest fit in these MOS but is not feasible for applicants who may not have an accurate perception of the activities performed in a particular MOS. As a result, in order for the AVID to be most useful for initial-entry MOS assignments, interest profiles for a broader range of MOS will be needed so that each applicant's interests can be compared with several MOS. Therefore, collecting these ratings would be a useful direction for future research.

As more data is collected from a variety of MOS we will be able to evaluate the contribution of individual AVID dimensions to the prediction of Soldier performance. This will help us determine which dimensions will be most useful for discriminating between MOS. There may also be some dimensions that are most useful for an overall AVID composite which predicts general Soldier performance, regardless of MOS. Conversely, dimensions that show the least predictively validly for performance may be dropped from the assessment and/or replaced by new dimensions. Given that the only artistic dimension included on the AVID (i.e., Writing) was significantly negatively related to performance in most of the MOS investigated, it may be also useful to include more dimensions that we expect to have negative relationships with performance.

Another useful direction for future research would be to examine the validity of the AVID under operational conditions. A key concern with many noncognitive measures is faking in high-stakes settings. Although there has been little research on faking on vocational interest measures, the research that does exist suggests that individuals can inflate their scores when they are motivated to do so (Abrahams et al., 1970; Garry, 1953, Hough et al., 2001). To address this issue and other response biases associated with self-report measures, the AVID is administered in a forced-choice format that has been shown to be resistant to faking (Cao & Drasgow, 2019). Therefore, it would be useful to demonstrate the validity of the AVID when individuals are motivated to distort their responses and inflate (or deflate) their scores. However, it is important to note that the motivation to fake on an interest assessment may not be as strong as on personality measures. If interest measures are used to help individuals to find jobs that they can be satisfied with and successful in, there does not seem to be a strong incentive to fake on these measures. Nevertheless, it is possible that individuals could fake good to get into a particular MOS that is not a strong fit for their interests because of social or normative pressures or misperceptions about the type of work performed in that MOS. Therefore, examining the AVID scores under operational conditions is important to demonstrate that this measure will maintain its utility for MOS assignment even in high-stakes contexts.

Finally, future research on the validity of the AVID should also examine the prediction of more objective criteria. In the present research, the AVID predicted a broad range of criteria that included self-ratings of attitudes and behavior. Although these outcomes provide useful information about the utility of the AVID, it would also be useful to examine their validity for predicting outcomes that are more objective as well. Self-reports can sometimes be inflated due to socially desirable responding. Therefore, examining the prediction of objective criteria such as

attrition or training success will provide an additional source of evidence for the validity of this measure.

Despite potential directions for future research, the results presented here suggest that the AVID is a promising predictor of Soldiers' attitudes and behaviors. Importantly, the AVID also predicted an overall performance variable, indicating that this assessment may be useful for identifying high potential individuals who can be successful in the Army and for differentiating individuals who may be successful in one (or multiple) MOS but not others. Therefore, these results provide preliminary evidence of the utility of the AVID for MOS assignment.

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