



Screening for Attrition and Performance with Non-Cognitive Measures

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Working Group 2 (WG2): Retaining Personnel

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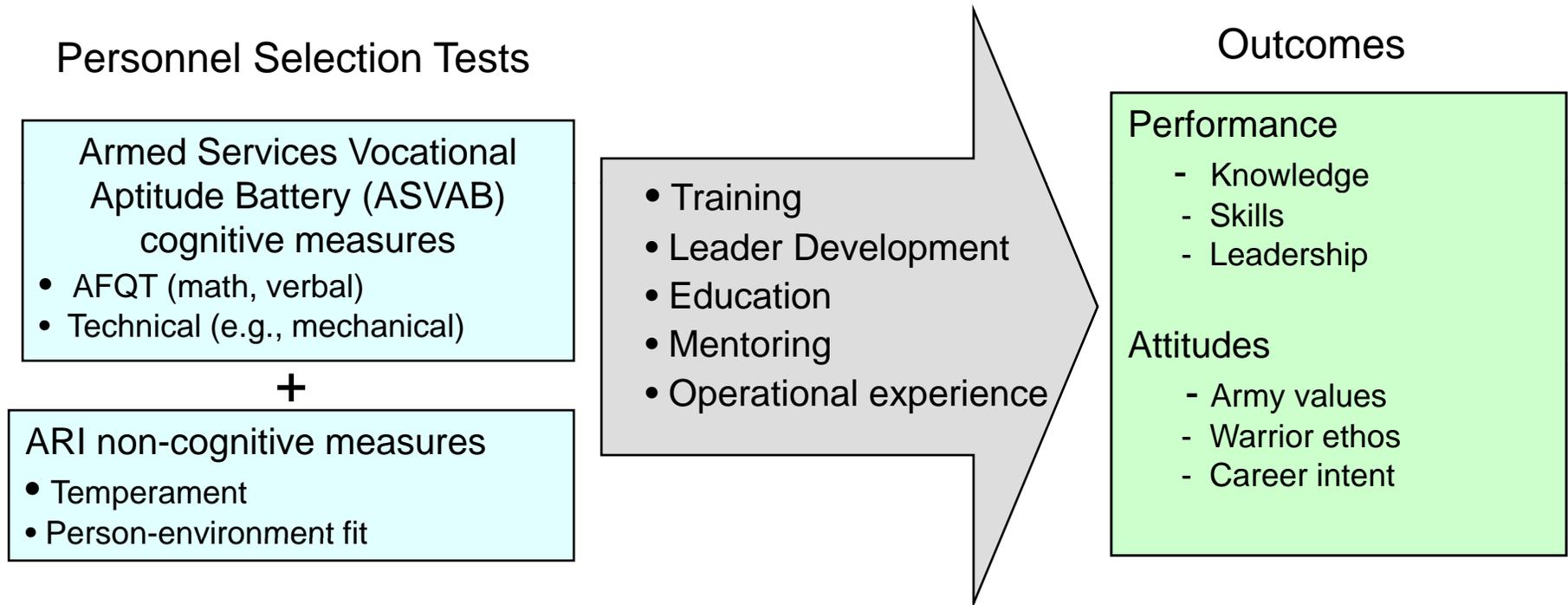
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ARI Selection and Assignment Research



Goal: Develop and validate non-cognitive measures against performance/attitudinal outcomes to enhance selection and assignment



Whole-person assessment = cognitive + non-cognitive measures



Organization of this Presentation



- Non-cognitive measures for enlisted Soldiers
 - Tier Two Attrition Screen
 - TAPAS Screen and TOPS program
 - Way ahead

- Non-cognitive measures for officers



Tier Two Attrition Screen (TTAS)



- Educational Tier 2 (mostly GEDs) enlistments have historically been capped at 10% because Tier 2 have about 50% higher first-term loss rates than Tier 1
- U.S. Army Research Institute developed the Tier Two Attrition Screen (TTAS) to identify Tier 2 with loss rates more similar to Tier 1
- TTAS combines predictors of first-term enlisted attrition for “whole-person” assessment
 - Cognitive: Subtests from Armed Services Vocational Aptitude Battery
 - Motivation: Assessment of Individual Motivation (AIM)
 - Physical : Gender-normed Body Mass Index

Scores from these measures are combined into a TTAS score

Higher TTAS Score = Lower Likelihood of Attrition



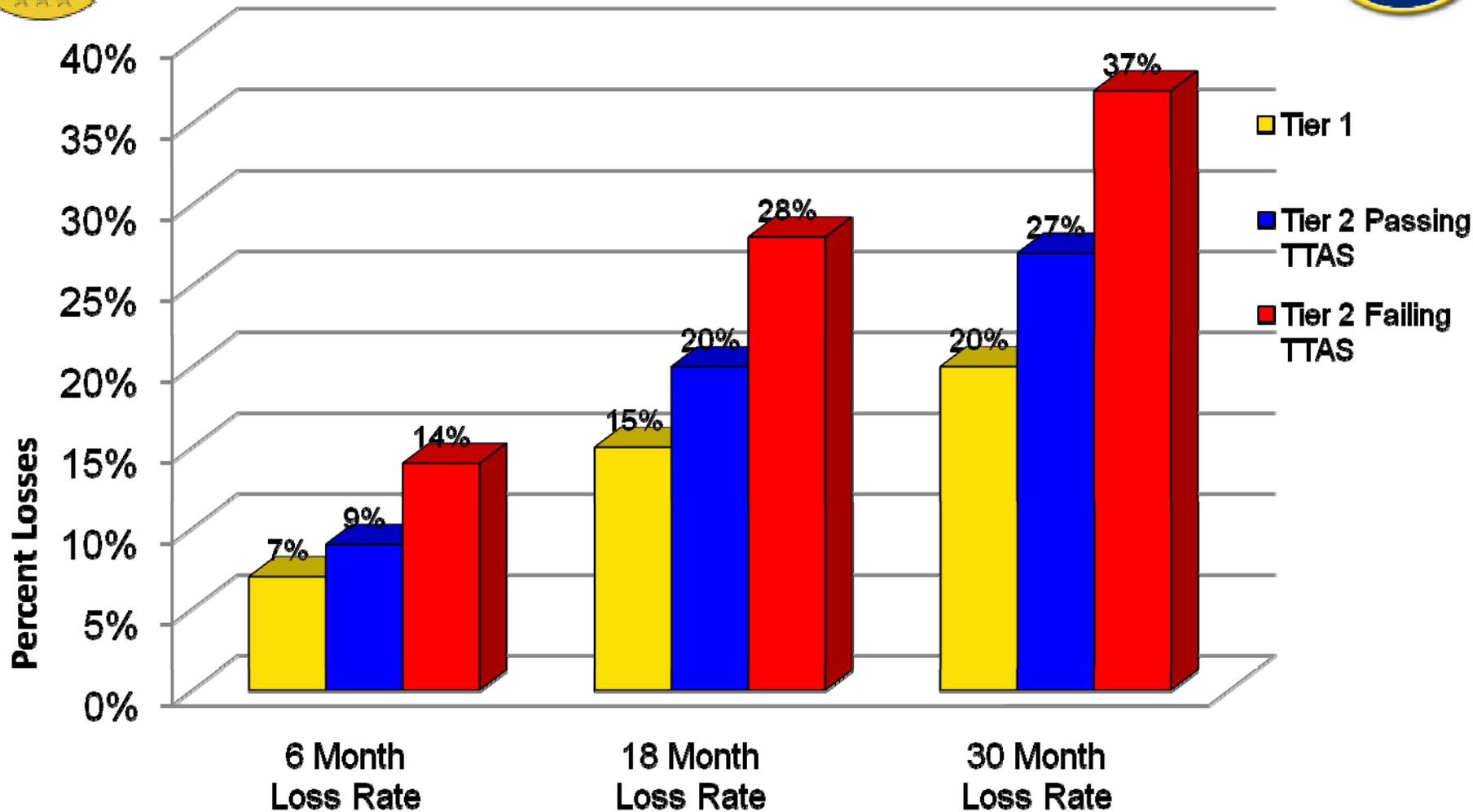
Assessment of Individual Motivation (AIM)



- 27-item, non-cognitive test for measuring Dependability, Adjustment, Physical Conditioning, Leadership, Work Orientation, and Agreeableness
 - Special Army test at MEPCOM; 25 minutes
- 2 responses made for each 4-statement item: behaviors/preferences most and least like respondent
- Predicts attrition and “will do,” motivational aspects of performance (e.g., indiscipline, job effort)
- Scale scores have a low correlation with minority group status and gender



How comparable are loss rates for Tier 2 passing TTAS and loss rates for Tier 1?



Note: Sample sizes, from left to right, are:

6-Month – 166055, 25325, 21524; 18-Month – 114272, 17445, 15146; 30-Month – 68010, 9552, 8353



Way Ahead: Tier 2 Screening



- Computerized AIM Implementation on the ASVAB platform at all MEPS
 - Added mode will make it easier to accomplish AIM testing
- Improve TTAS Prediction of Attrition and Performance
 - Close gap between loss rates of Tier 2 passing TTAS and Tier 1
 - FY10 testing of Tier 2 applicants on Tailored Adaptive Personality Assessment System (TAPAS) and AIM and follow-up analyses of prediction of attrition and performance



TAPAS: Tailored Adaptive Personality Assessment System



- 15 dimensions including:
 - Achievement
 - Non-delinquency
 - Even-tempered
 - Intellectual efficiency
 - Optimism
 - Physical conditioning
 - Attention seeking
- Computer-adaptive test delivered on the CAT-ASVAB platform at MEPS
- Paired forced-choice self-descriptors
- TAPAS provides two scores for each applicant
 - “Can do” predicts AIT grades, training graduation rates, job knowledge
 - “Will do” predicts APFT scores, job effort, indiscipline rate, attrition
- Females score slightly higher than males
- Blacks and Hispanics score slightly higher than Whites

TAPAS

Which of these statements is most like you?

- I like roller coasters.
- I enjoy parties.

Note: Forced choice measures provide no obvious best/worst answer options.

A cartoon illustration of a man in a suit looking thoughtful, with a question mark above his head.



AIM and TAPAS Constructs



AIM CONSTRUCTS

Dependability

Adjustment

Physical Conditioning

Leadership

Work Orientation

Agreeableness



TAPAS CONSTRUCTS

Non-delinquency

Optimism

Physical Conditioning

Dominance

Achievement

Even Tempered

Generosity

Excitement Seeking

Intellectual Efficiency

Orderliness

Tolerance

Cooperation

Sociability

TAPAS assesses these unique constructs



Research Approach: Validating TAPAS



- Administered non-cognitive selection measures (TAPAS) to enlisted Soldiers from all components at Reception BNs (approx 11K in 2007)
- Tracked Soldiers to completion of AIT/OSUT
- Collected outcome data in Initial Entry Training (IET)
 - Attrition (RA only), AIT course grades (subset of MOS), graduation rates
 - For 6 targeted MOS (11B, 19K, 31B, 63B, 68W, 88M):
 - ⇒ Job knowledge test
 - ⇒ Self-report: APFT scores; Disciplinary rates; Career intent
 - ⇒ Job performance ratings from drill sergeants and peers
- Continuing to track through first term of enlistment

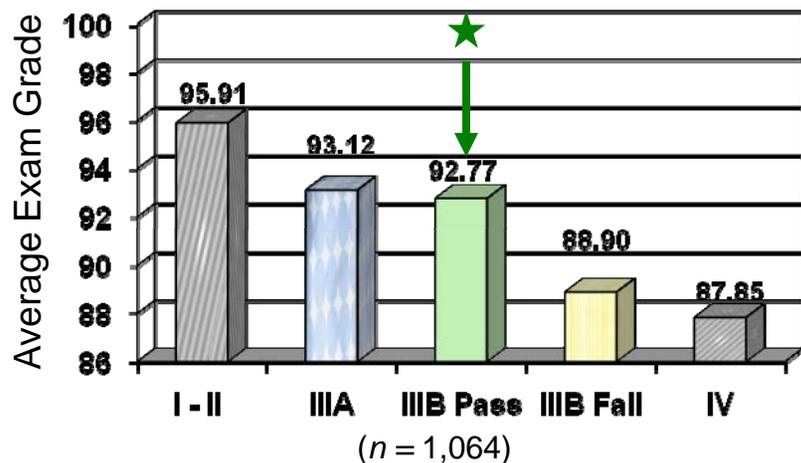


TAPAS Related to Training Outcomes in Research Setting

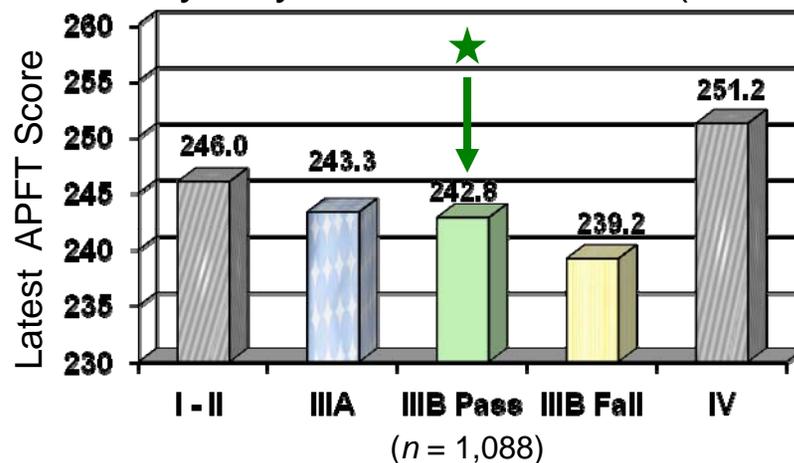


Tier 1 NPS CAT IIIB Soldiers passing TAPAS screen perform similar to or better than Soldiers in Higher AFQT Categories

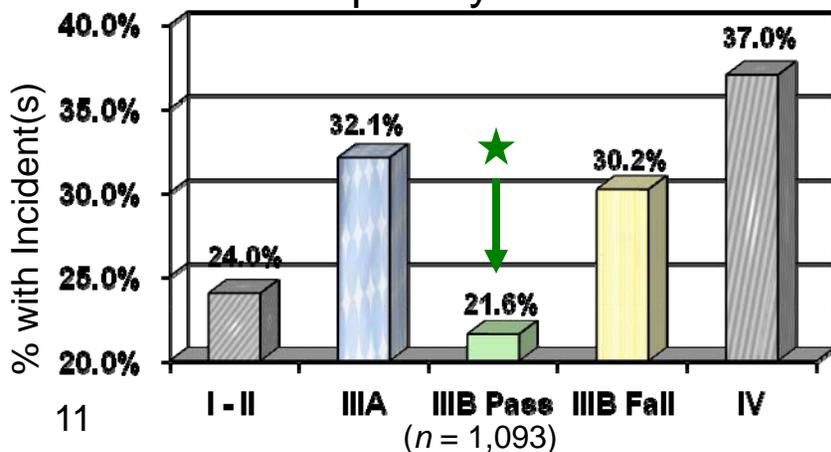
AIT Exam Grades



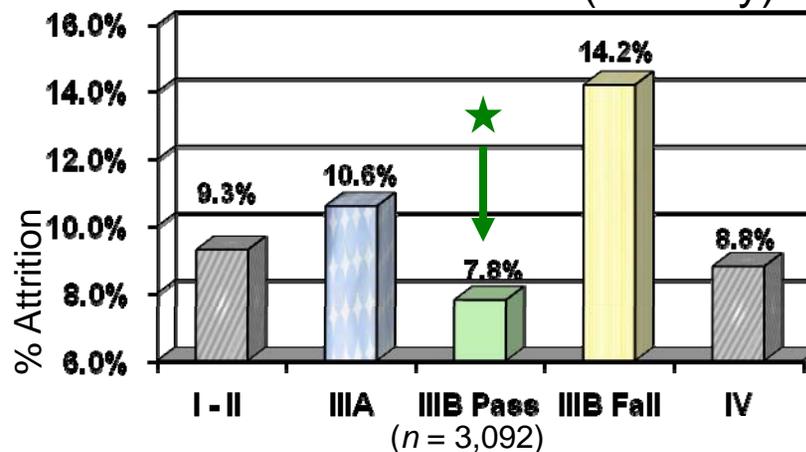
Army Physical Fitness Test (APFT)



Disciplinary Incidents



6-Month Attrition (RA only)





IOT&E: Tier 1 Performance Screen (TOPS)



Testing and Screening Process

- Administer TAPAS in MEPS to Army and Air Force applicants; phased in May-Aug 09
 - All Tier 1 (high school diploma graduates) NPS applicants
 - Exception: CAT I-III B applicants arriving at MEPS with valid ASVAB score
 - All Tier 2 (non high school diploma graduates) NPS applicants starting Mar 10
- Use TAPAS to screen out a small number of low motivated CAT IV Army applicants (no screening for Air Force)
- Screen at the 10th percentile; ~ bottom 13% are ineligible

IOT&E concept endorsed by Secretary of the Army, 6 Jan 09
Implementation plan approved by Army G-1, 11 Mar 09
Supported by CG, USAAC, 24 Mar 09
Implementation memo signed by DMPM, 3 Apr 09



IOT&E: Tier 1 Performance Screen (TOPS)



Testing and Evaluation Process

- Administer TAPAS in 7 MEPS (began 4 May 09)
 - All Tier 1 (high school diploma graduates) NPS applicants
 - Exception: CAT I-III B Soldiers arriving at MEPS with valid ASVAB score
 - Phased implementation of TAPAS testing will have reached all MEPS by 17 July
- Track Soldiers to completion of Initial Entry Training (IET) and evaluate performance outcomes across AFQT categories
 - Attrition (AC only), AIT grades (as available), graduation rates
 - For 8 targeted MOS (11B, 19K, 25U, 31B, 42A, 63B, 68W, 88M):
 - ⇒ Job knowledge test
 - ⇒ Self report: APFT scores; disciplinary rates; career intent
 - ⇒ Job performance ratings from drill sergeants
- Review at 6 month intervals for evaluation/modification

IOT&E concept endorsed by Secretary of the Army, 6 Jan 09



Way Ahead: Non-cognitive Measures for Enlisted Personnel

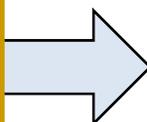


Research Longitudinal Validation

- Track Soldiers; assess at 18 and 36 m. TIS
- Validate non-cognitive measures for selection against first term performance

Research Training Validation

- Identified/administered non-cognitive measures to new Soldiers in a research setting
- Validated non-cognitive measures for training criteria
- Validated TAPAS as potential screening tool



In-service Validation

- Validate TAPAS to select NCOs for special assignments (recruiter, drill sergeant)

Classification Validation

- Validate non-cognitives for MOS classification



Tier One Performance Screen (TOPS) Longitudinal Evaluation

- Administer TAPAS at MEPS
- Track Soldiers; Assess at end of training, 18 m., and 36 m. TIS
- Validate operational TAPAS for selection against first term performance

- Completed Research
- Research evaluation
- Operational evaluation



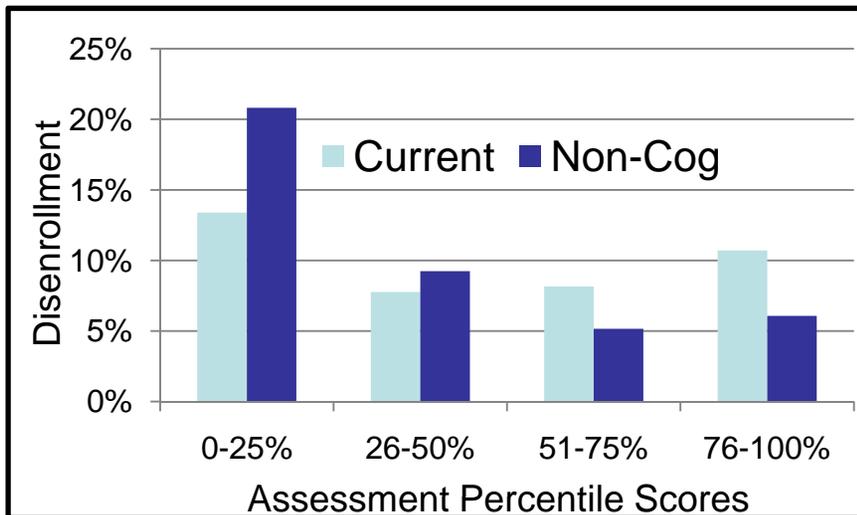
ARI Research: Non-cognitive Measures for Officers



Research goal: Develop/refine and validate non-cognitive measures to predict attitudinal and performance outcomes: Career continuance, Junior officer performance, and Senior leader potential.

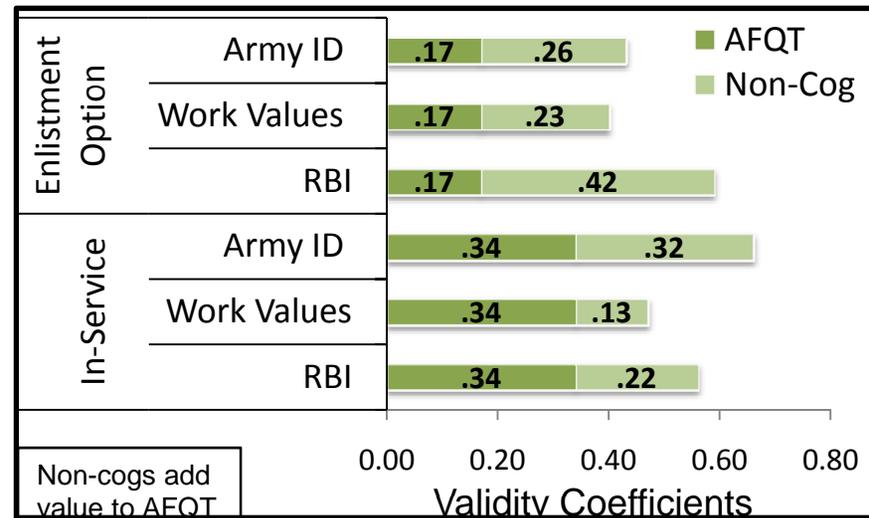
Initial research findings: *ARI non-cognitive measures increase prediction of ROTC continuation and OCS career intentions, beyond traditional screening measures.*

Predictors of ROTC Continuation



Current System: Overall Whole Person Score
Non-Cog Measure: Cadet Background Evaluation Form

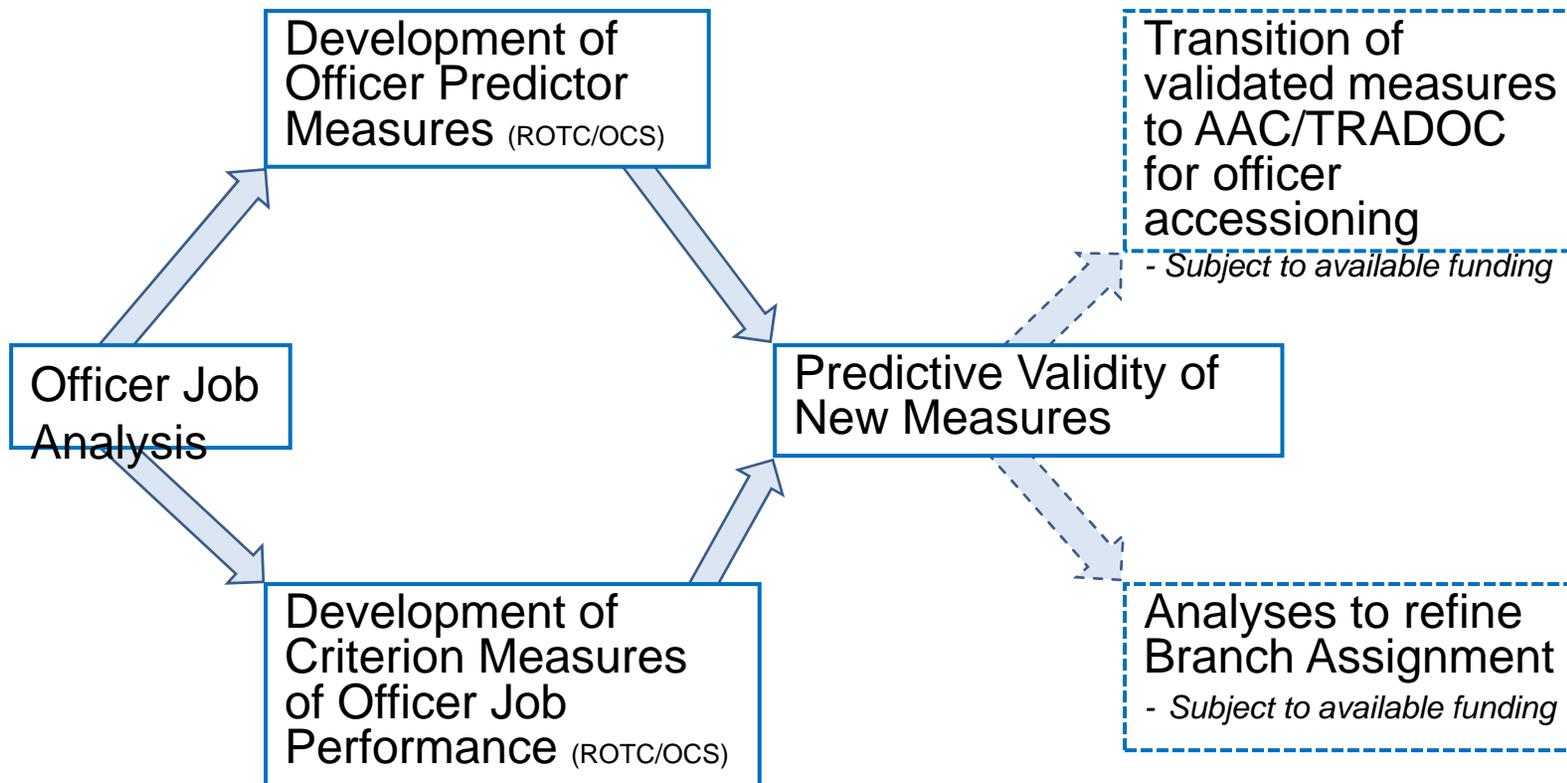
Predictors of Career Intentions in OCS



Army ID: Strength, ability and depth of Army identification
Work Values: Work-related desires and priorities
RBI (Rational Biodata Inventory): Job-related temperaments



Way Ahead: Non-cognitive Measures for Officer Screening



- Final Products**
- *Specification of officer performance requirements across rank & branch*
 - *Validated tests for officer candidate selection and branch assignment*