Psychological Attributes Critical to Performance & Aeromedical Sustainment of U.S. Air Force Pararescue Special Duty Operators

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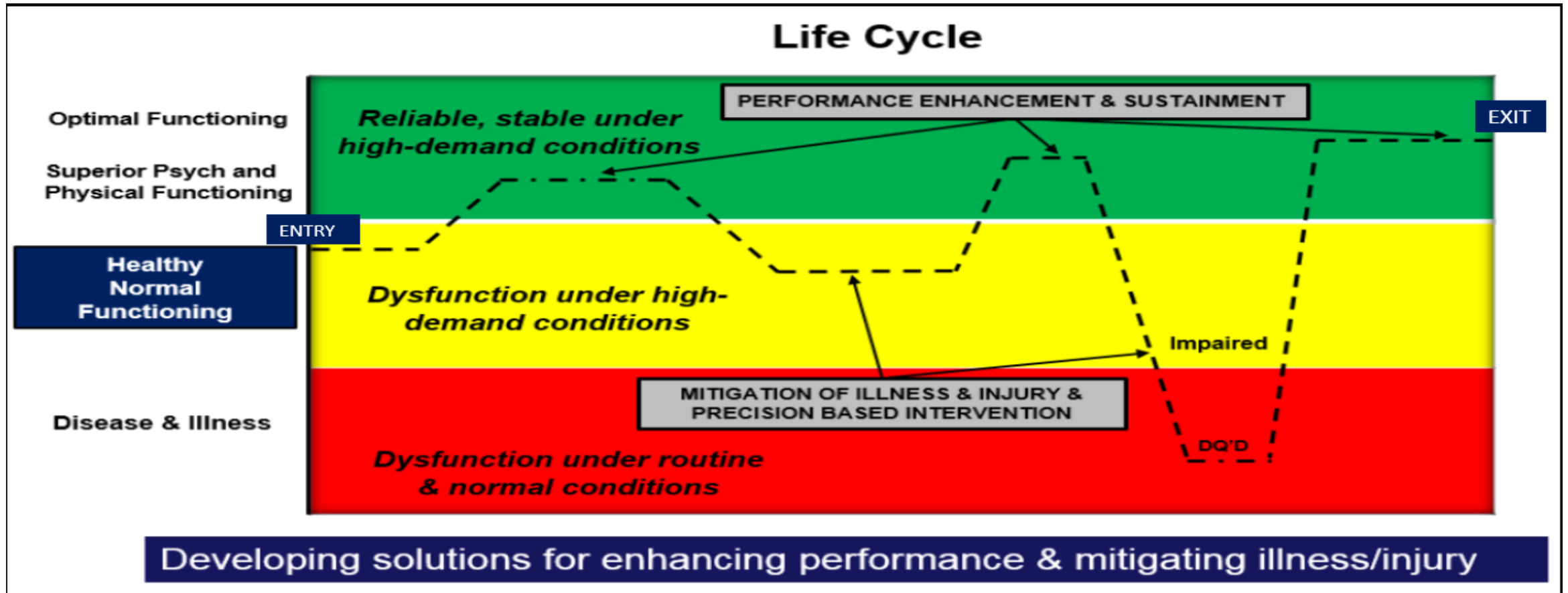
Overview

- **U.S. Air Force Pararescue (PJ) Airmen**
  - High risk/high demand
  - Critical to extraction of U.S. and allied forces
  - Emergency response and care in battlefield environments

- **Traditional Selection**
  - Physical traits
  - Intelligence

- **USAFSAM Aeromedical Operational Psychology Approach**
  - Combination of physical traits and intelligence
  - Include evaluation of personality traits

USAF photo/SSgt Jeremy T. Lock

Aeromedical Operational Psychology Goals

- Evaluating/predicting readiness for high-risk, high-demand Air Force Specialty Codes (throughout lifecycle)
- Optimizing high states of health/functioning to adapt to high-risk/demand mission sets

Life Cycle

Optimal Functioning

Superior Psych and Physical Functioning

Reliable, stable under high-demand conditions

PERFORMANCE ENHANCEMENT & SUSTAINMENT

EXIT

ENTRY

Healthy Normal Functioning

Dysfunction under high-demand conditions

Impaired

Disease & Illness

MITIGATION OF ILLNESS & INJURY & PRECISION BASED INTERVENTION

Dysfunction under routine & normal conditions

DQ'D

Developing solutions for enhancing performance & mitigating illness/injury

PJ Training

- Indoctrination Course (9 weeks)

- U.S. Army Airborne School (3 weeks)

- U.S. Air Force Combat Diver School (6 weeks)

- U.S. Navy Underwater Egress Training

- U.S. Air Force Basic Survival School (2.5 weeks)

- U.S. Army Military Free Fall Parachutist School (5 weeks)

- Paramedic Course (22 weeks)

- Pararescue Recovery Specialist Course (24 weeks)

- Special Tactics Training Squadron (AFSOC)

- 68th Rescue Squadron, Formal Training Unit (ACC)

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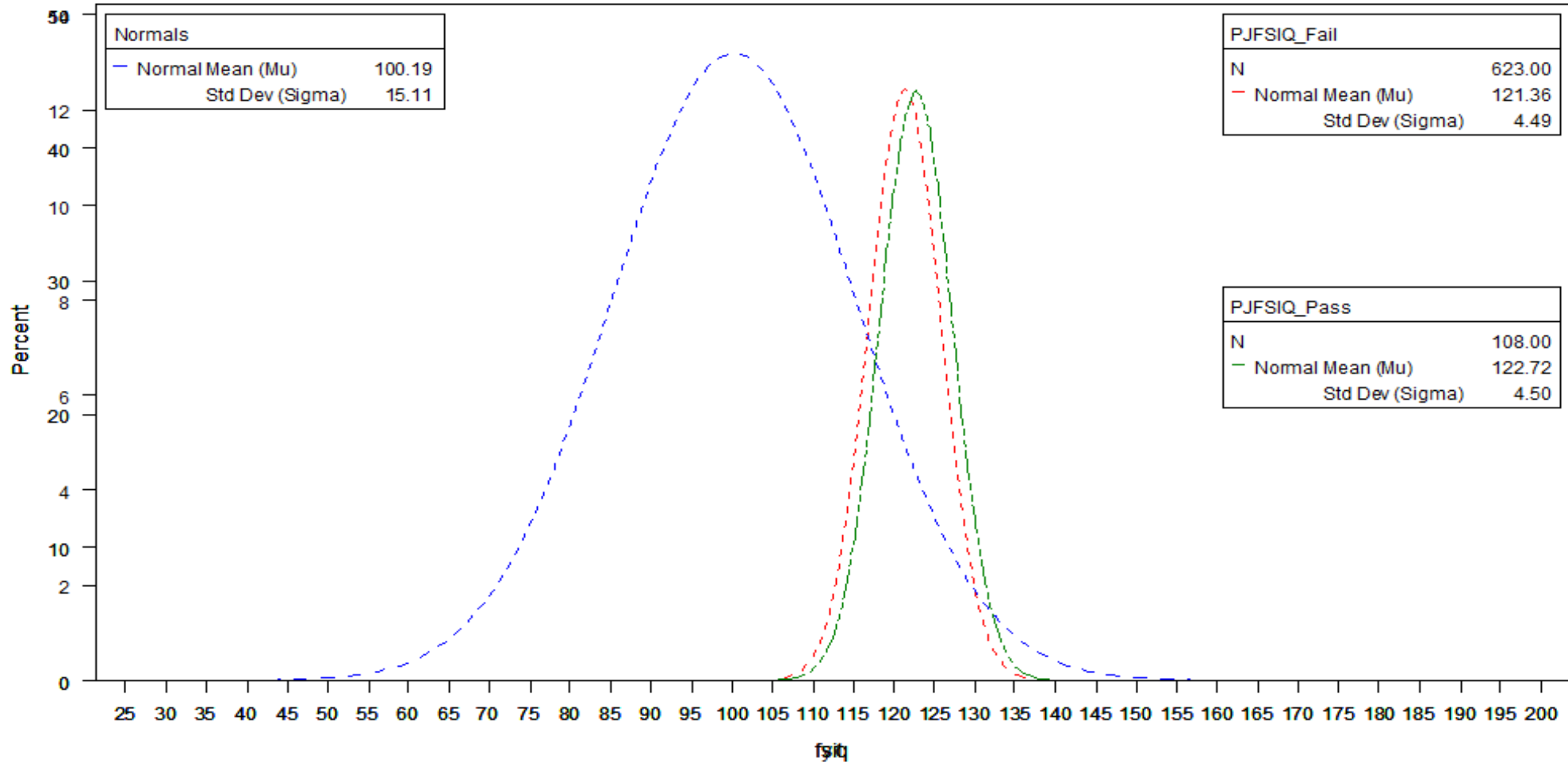
Traditional Selection Standards

- Physical Fitness
  - Timed run, push-ups, sit-ups, pull-ups, swim
  - Standards exceed AF general accession reqs

- Cognitive Aptitude
  - Armed Forces Vocational Aptitude Battery (ASVAB)
  - Assesses mechanical, admin, general, electrical knowledge, and capabilities
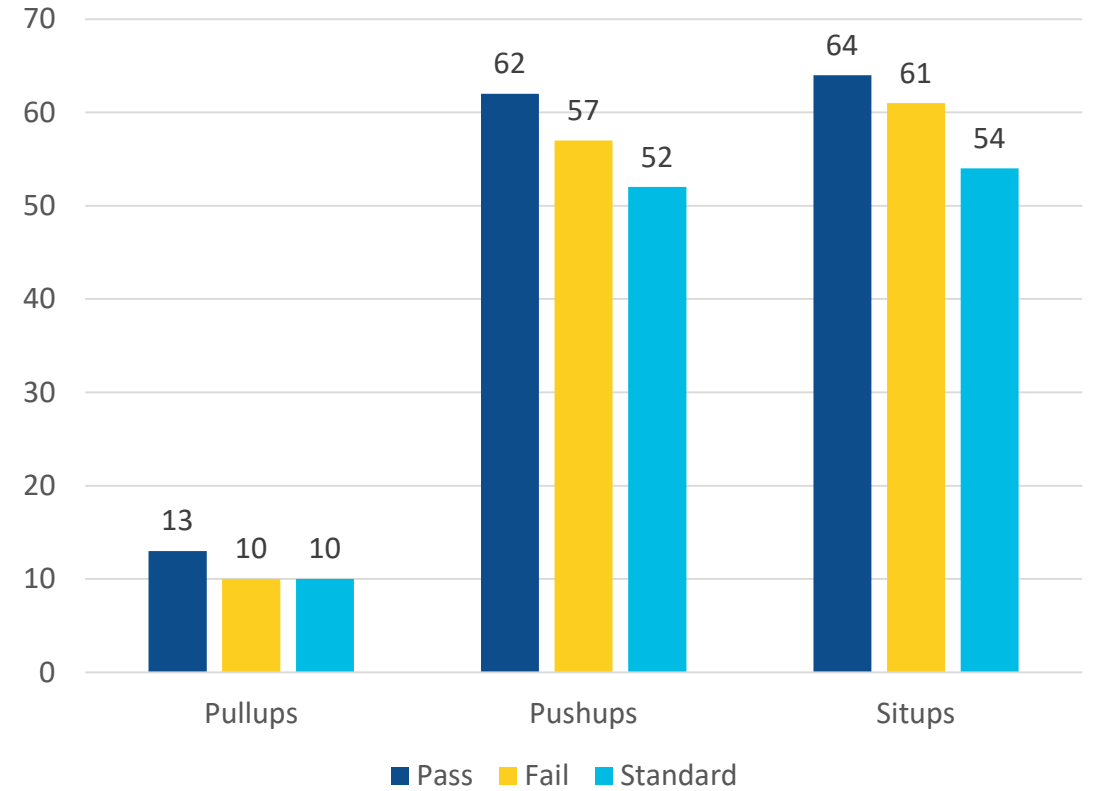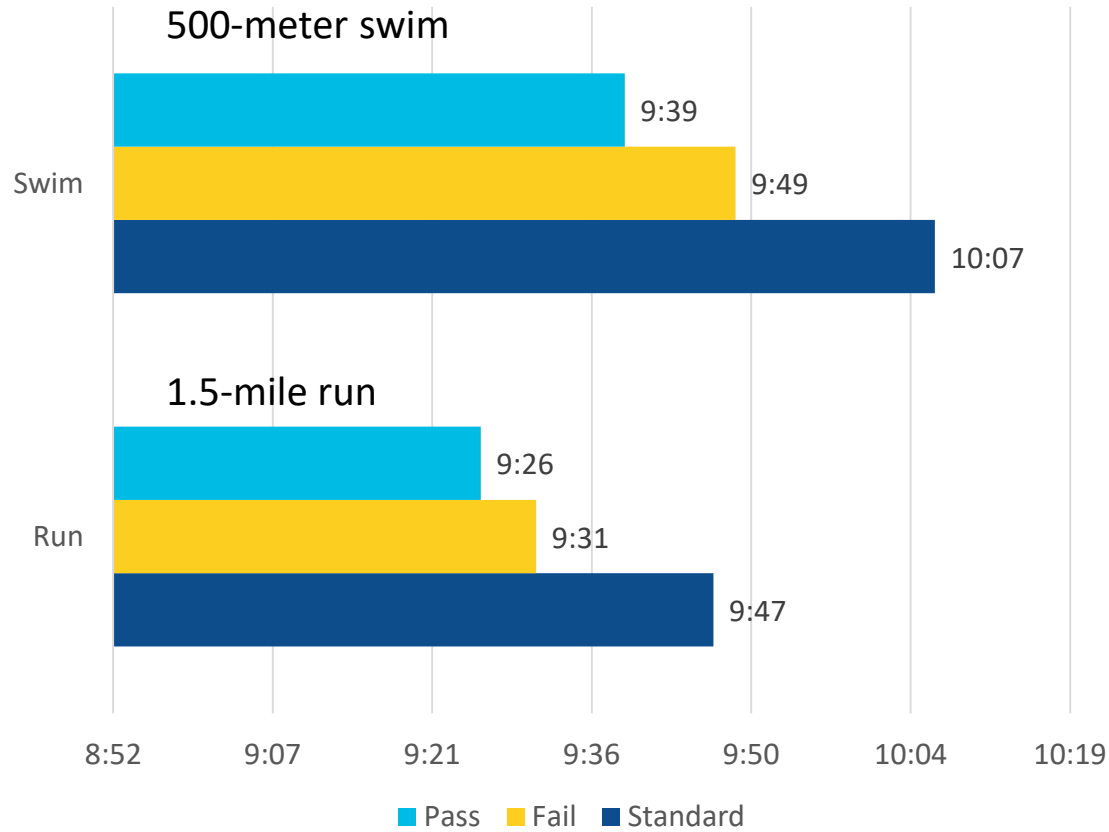 - General composite score cutoff higher than standard AF career fields

USAF photo/MSgt Russell Cooley IV

Cognitive Aptitude

PJ Failures and Graduates Estimated FSIQ Compared to Normative Population

Physical Ability

500-meter swim / 1.5-mile run chart:

Swim:
- Pass: 9:39
- Fail: 9:49
- Standard: 10:07

Run:
- Pass: 9:26
- Fail: 9:31
- Standard: 9:47

Legend: Pass, Fail, Standard

Pullups / Pushups / Situps chart:

Pullups:
- Pass: 13
- Fail: 10
- Standard: 10

Pushups:
- Pass: 62
- Fail: 57
- Standard: 52

Situps:
- Pass: 64
- Fail: 61
- Standard: 54

Legend: Pass, Fail, Standard

USAFSAM Study

- FY 2014-2017

- N = 1140
    - New recruits
    - Male
    - PJ candidates

- Goals
    - Assess distribution of attrition by day of training (DOT)
    - Assess pre-training psych testing as a predictor of training outcomes
    - Model survival based on psychological predictors revealed in testing

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Trainee Elimination by DOT

- Vast majority (86%) of training attrition occurs during first 55 days
  - Graduates – 160 (14%)
  - Non graduates - 980 (86%)

- Outcomes based on pass vs. fail during these first 55 days

- Performance outcomes matched to each candidate; statistical regression utilized to identify areas predictive of performance
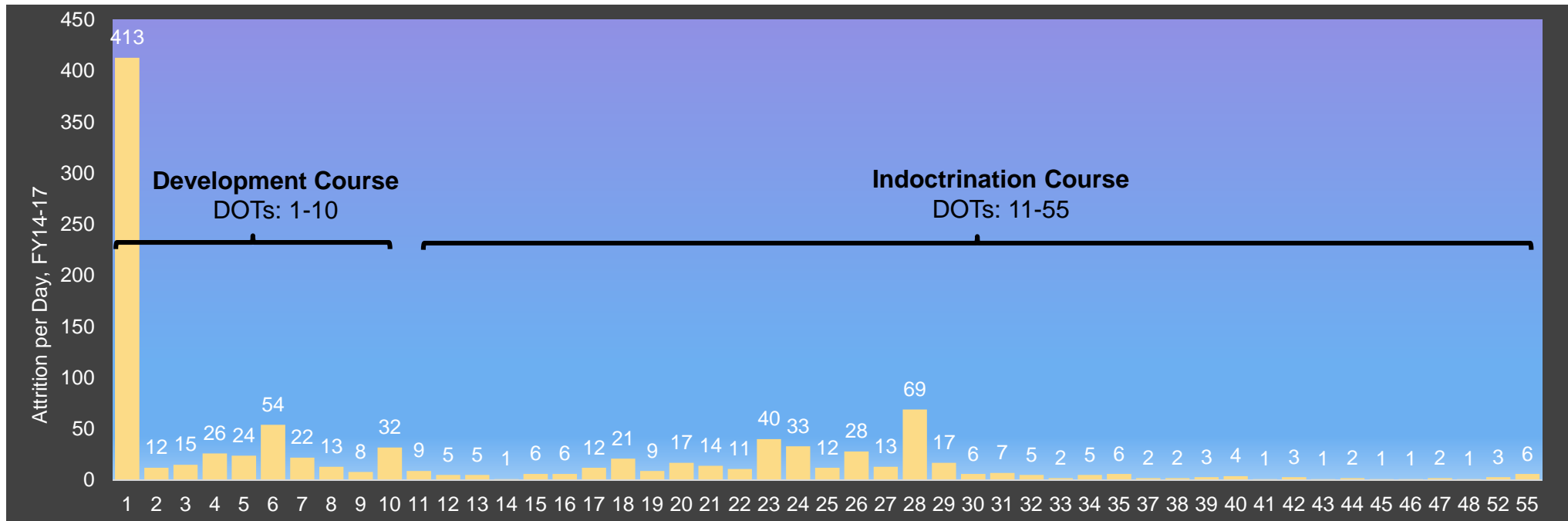
# Non-Cognitive Testing (NEO PI-3)

- Questionnaire based on the Five Factor model of personality

- 240 items, 30-40 minutes to complete

- Assesses:
  - Neuroticism
  - Extraversion
  - Openness
  - Agreeableness
  - Conscientiousness

Domains and Facets Measured by the NEO-PI-3		
Domains	**Extraversion (E) facets**	**Agreeableness (A) facets**
N: Neuroticism	E1: Warmth	A1: Trust
E: Extraversion	E2: Gregariousness	A2: Straightforwardness
O: Openness	E3: Assertiveness	A3: Altruism
A: Agreeableness	E4: Activity	A4: Compliance
C: Conscientiousness	E5: Excitement-Seeking	A5: Modesty
	E6: Positive Emotions	A6: Tender-Mindedness
Neuroticism (N) facets	**Openness (O) facets**	**Conscientiousness (C) facets**
N1: Anxiety	O1: Fantasy	C1: Competence
N2: Angry Hostility	O2: Aesthetics	C2: Order
N3: Depression	O3: Feelings	C3: Dutifulness
N4: Self-Consciousness	O4: Actions	C4: Achievement Striving
N5: Impulsiveness	O5: Ideas	C5: Self-Discipline
N6: Vulnerability	O6: Values	C6: Deliberation

- Breaks the Five Factors into 6 facets of each domain

Results

- Areas of cognitive, emotional, and social functioning were shown to be significant in predicting success in training

- **Cognitive**
  - Candidates scoring higher on all ASVAB subsets (except Electronics) more likely to complete training

- **Emotional**
  - *Modesty*
  - *Deliberation*

- **Social**
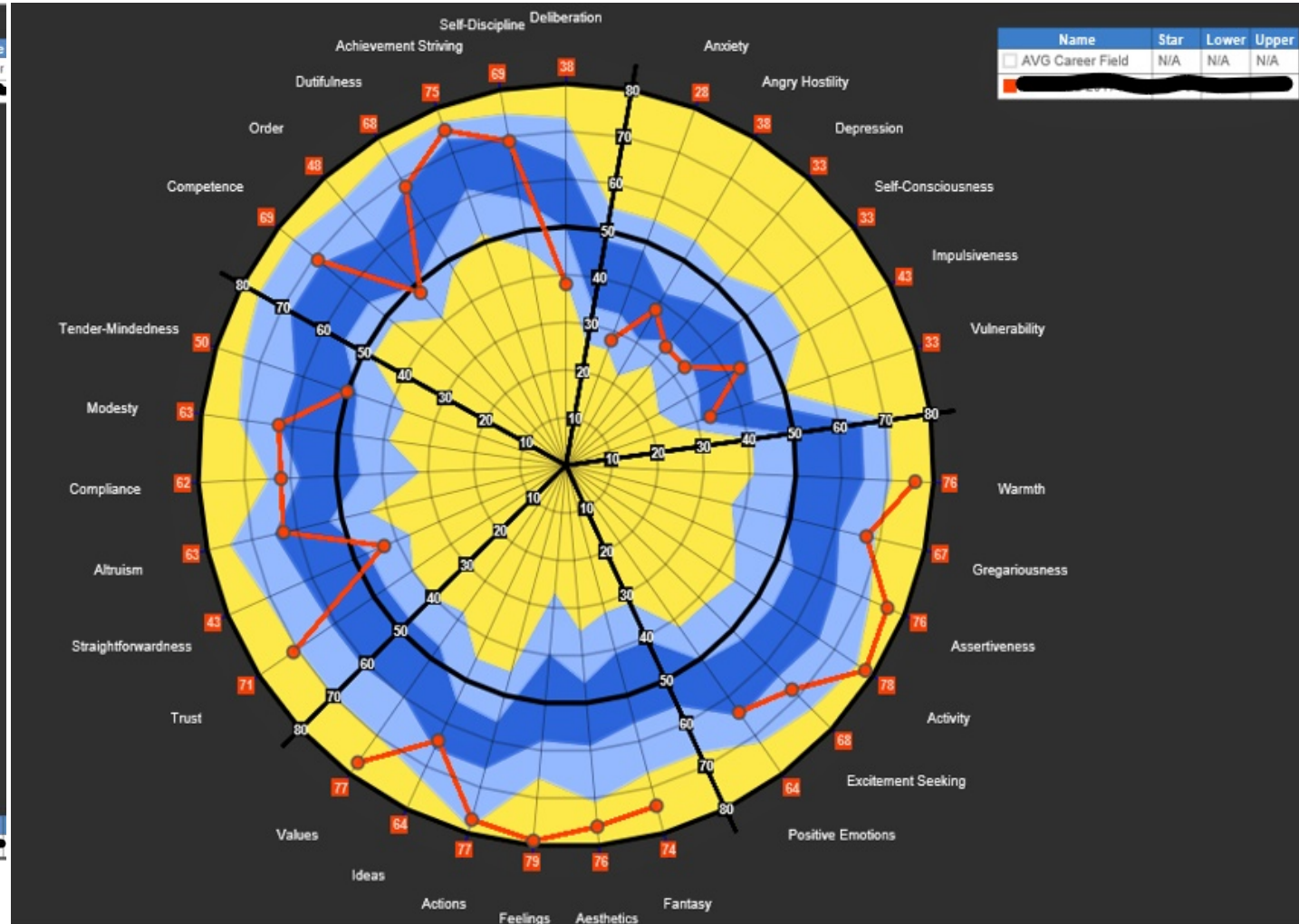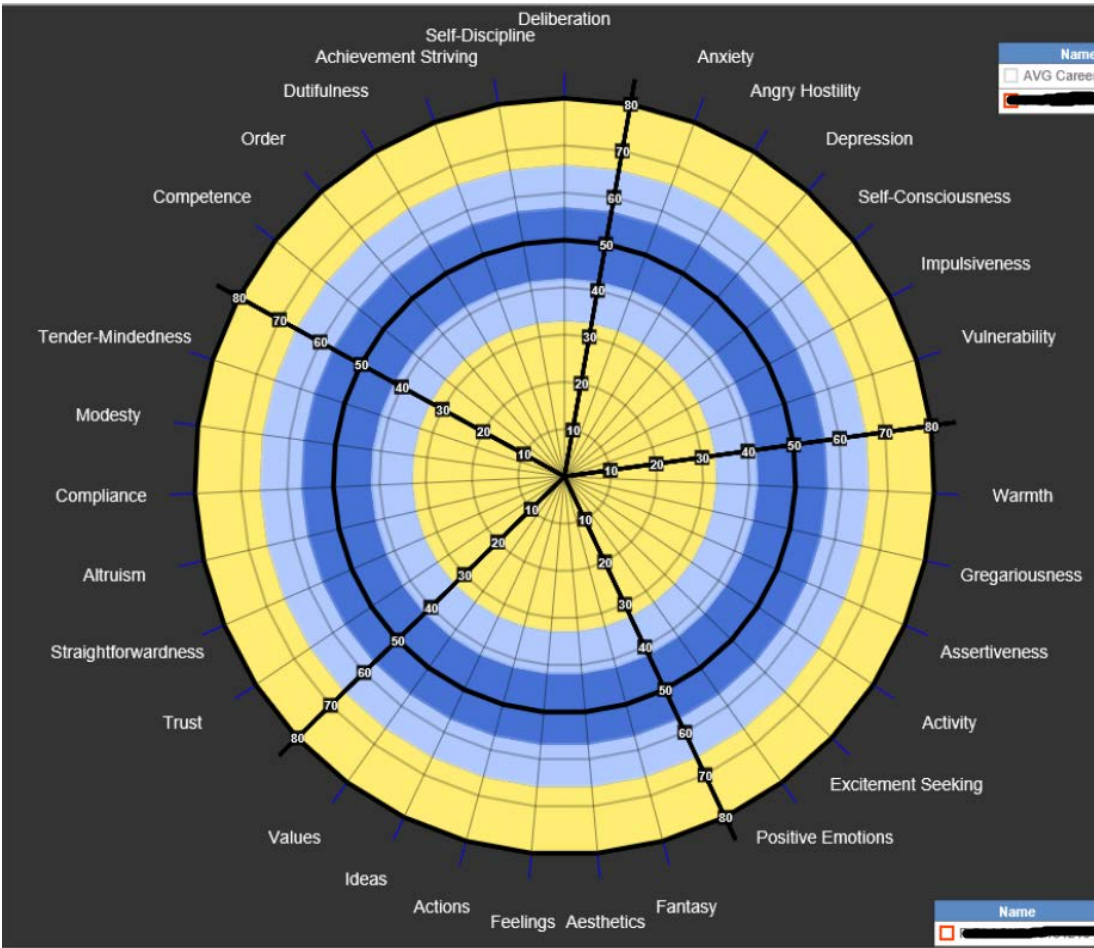 - *Actions*
  - *Compliance*
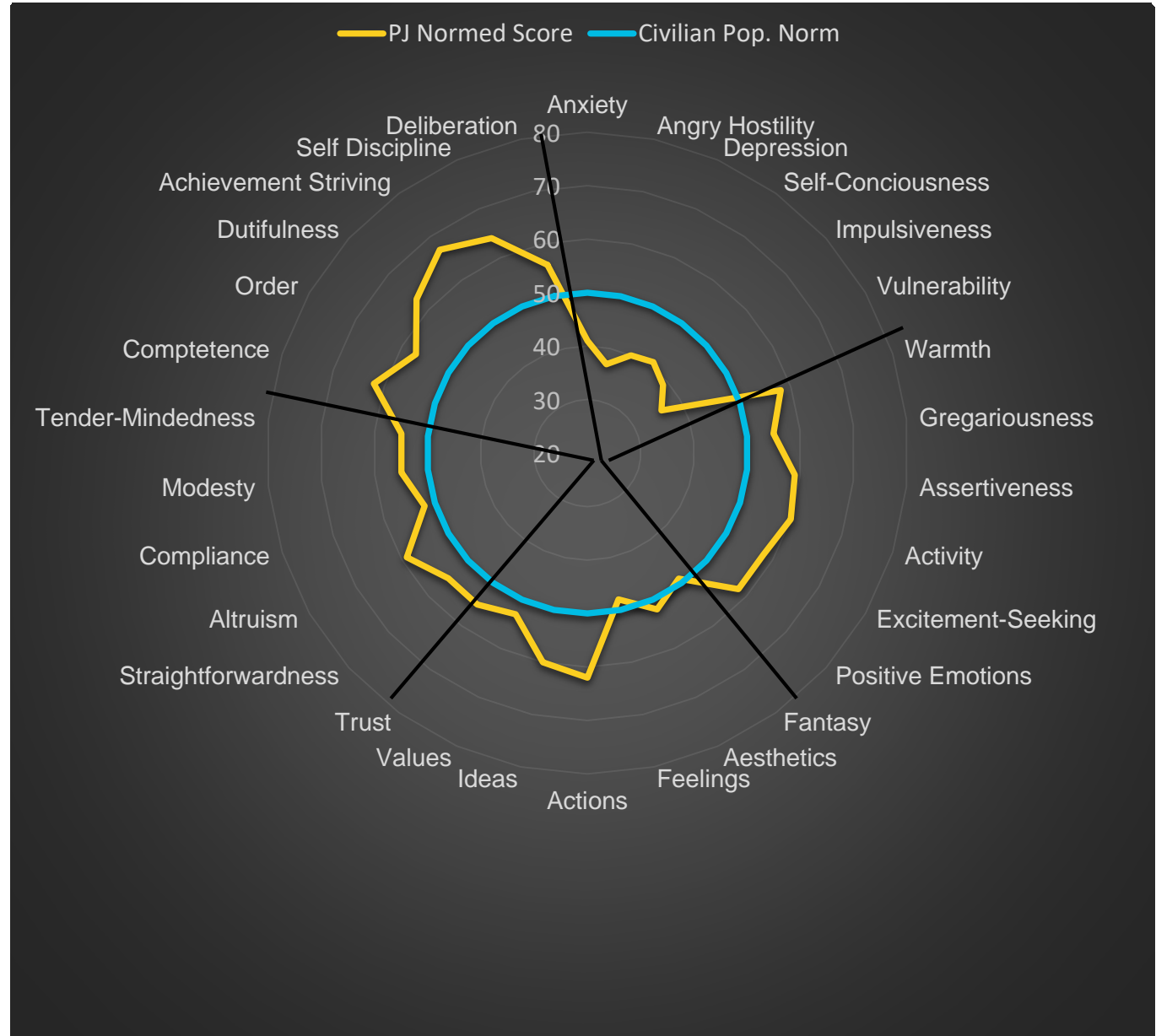
Results

- Areas shown to be predictive of passing DOT 10 (52% attrition)

- **Cognitive**
  - ASVAB Electronics and Auto Information subtests

- **NEO Facets**
  - *Warmth*
  - *Gregariouness*
  - *Positive Emotions*
  - *Compliance*
  - *Modesty*
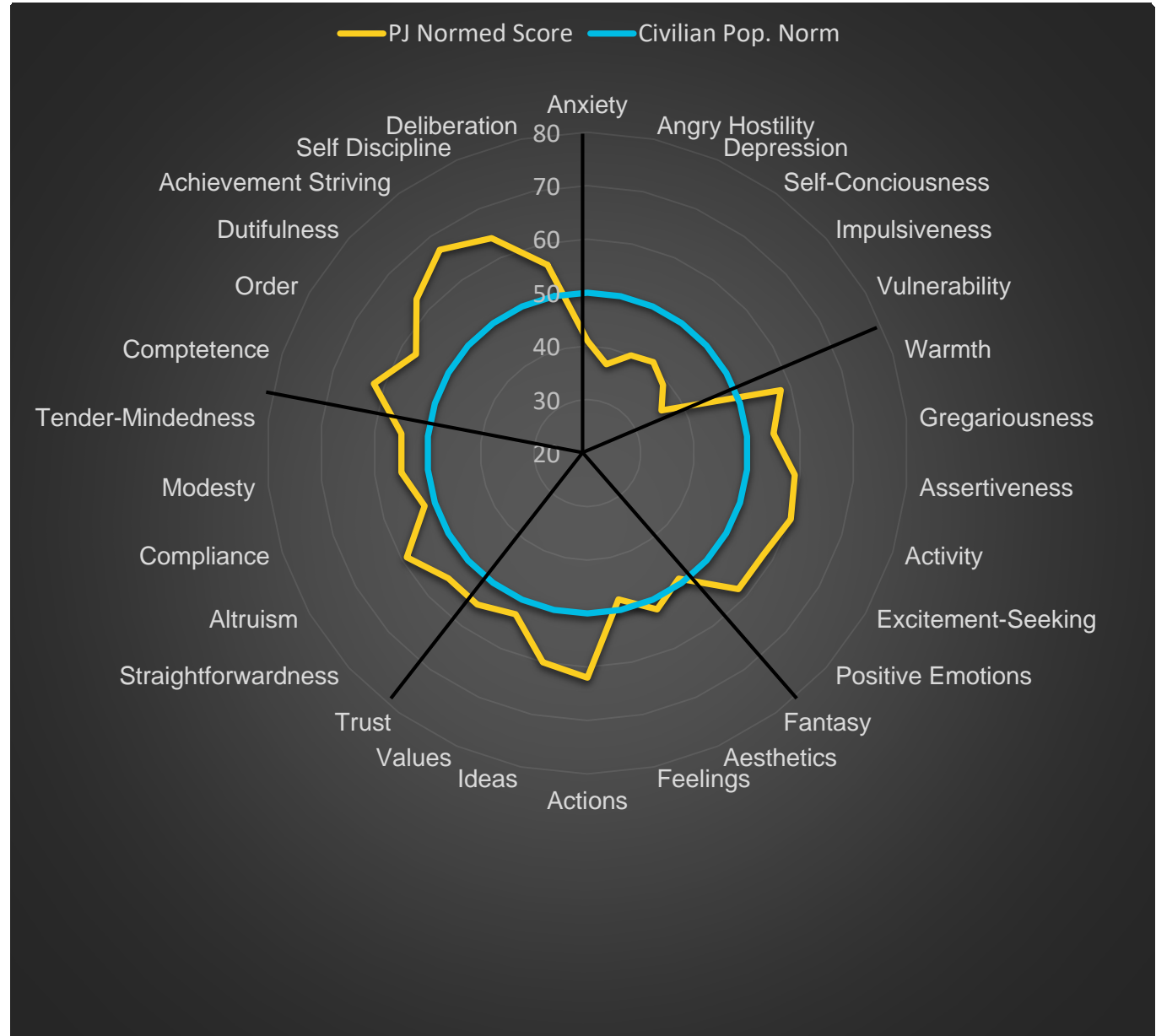
Current Application – Sustainment

Questions?