



# Revision of the Aviation Selection Test Battery (ASTB)

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# ASTB Subtests Yield 5 Component Scores for Aviation Applicants

- Academic Qualifications Rating (AQR)
  - ◆ Predicts academic performance
- Pilot/FO Flight Aptitude Ratings (PFAR & FOFAR)
  - ◆ Predict flight performance
- Pilot/FO Biographical Inventory scores (PBI & FOBI)
  - ◆ Predict attrition from training
  - ◆ Navy use suspended 22 Apr 02

# ASTB Revalidation

- Revision requested:
  - ◆ CNATRA ltr N324/01520 of 5 Oct 00
  - ◆ CNP ltr of 13 Aug 01
  
- CO, NAVOPMEDINST tasked:
  - ◆ BUMEDINST 1532.1K

# Why Revision is Necessary

- BI validity declining
- Current ASTB does not tap aspects of performance such as:
  - ◆ Multitasking ability
  - ◆ Fine motor skills
  - ◆ Reaction time
  - ◆ Flight-related personality characteristics
  - ◆ Motivation (i.e., BI validity decline)

# Online ASTB

- Computerized version of the current ASTB exists
  - ◆ Developed by Naval Aerospace Medical Research Laboratory (NAMRL)
    - ◆ Automated Pilot Examination (APEX)
- Currently in use at 5 sites in CONUS
- Online ASTB will be implemented nationwide within 9 months, following revision
  - ◆ Funding received Apr 02

# Online ASTB

- Online ASTB will allow fielding of experimental items with all administrations of current ASTB
- Items may include:
  - ◆ Standard multiple choice items
  - ◆ Multimedia items assessing spatial ability, motor skills, etc.
  - ◆ Reaction time tracking for:
    - ◆ Multitasking skill assessments
    - ◆ Detection of dishonest responses to personality inventory items

# Plan of Work

- Conduct job analysis
  - ◆ Mandated by Federal Register 1978 § 1607
- Develop or select existing subtests for inclusion
  - ◆ Conduct subjectivity and bias review on all items
- Collect ASTB data nationwide using Online ASTB
  - ◆ Investigate potential bias/unfairness
- Administer experimental tests to API students using Online ASTB

# Plan of Work

- Collect training data on API student performance
  - ◆ Academic performance
  - ◆ Primary flight performance
  - ◆ FRS performance (if possible)
- Assess how well new ASTB items predict success in training
- Develop scoring algorithms (i.e., new AQR, etc.)
- Develop parallel test forms
- Get external review
- Implementation & Documentation

# Timeline

- Project completion in 5 years
  - ◆ Of these, 3.5 years required to collect sufficient training data (~5,000 API students)
  - ◆ Data requirements driven by legally mandated assessments of gender or ethnicity bias

# Payoff

- Revised ASTB will reflect constructs not currently assessed:
  - ◆ Multitasking
  - ◆ Reaction time
  - ◆ Motor skills
  - ◆ Motivation
- Improved content coverage will:
  - ◆ Increase our ability to predict success
  - ◆ Reduce attrition

# Contact Information

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# BUMEDINST 1532.1K

- 11. The CO, NAVOPMEDINST is responsible for maintaining a continuing assessment of validity indexes of the aviation selection test program for selection and prediction of success in aviation programs.
- The CO is responsible for the fielding of new experimental test items for data collection and analyses which ensures the highest possible level of predictive validity is maintained.