This document highlights RAND Project AIR FORCE (PAF) research on training and development. We also highlight exemplars of RAND research on this topic conducted for the sister services and the Office of the Secretary of Defense that may be applicable to Department of the Air Force (DAF) training and development efforts.

**RESEARCH TOPICS**
RAND research on training and development for the DAF and other military departments has addressed various topics, including
- selection and classification
- the training pipeline
- training effectiveness
- officer development
- live, virtual, and constructive training
- the training environment.

**RESEARCH METHODS**
RAND staff include more than 600 doctoral-level researchers with expertise in a variety of topics. PAF is able to draw from this broad research staff to help address important research questions raised by the DAF. PAF also maintains a core set of researchers who have particular expertise and knowledge of the DAF to help ensure that our research approach fits the DAF context. PAF research on training and development issues has used a variety of approaches, including
- training needs analysis
- program evaluation
- test validation
- statistical modeling
- survey design, administration, and analysis
- interviews and focus groups
- literature reviews.

**IMPACT**
PAF’s policy-focused approach to research has enabled our findings to directly influence DAF policy and practices related to various training and development topics, including
- pilot training
- force development
- testing standards
- monitoring of abuse and misconduct in training environments
- improvements to training pipeline processes.

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SELECTION AND CLASSIFICATION

DAF–SPONSORED RESEARCH

Tailoring Medical Standards for Air Force Personnel
RR-A571-1, www.rand.org/t/RRA571-1

Physical Task Simulations: Performance Measures for the Validation of Physical Tests and Standards for Battlefield Airmen
RR-1595-AF, www.rand.org/t/RR1595

Evaluating an Operator Physical Fitness Test Prototype for Tactical Air Control Party and Air Liaison Officers: A Preliminary Analysis of Test Implementation
RR-2171-AF, www.rand.org/t/RR2171

Evaluation of the Strength Aptitude Test and Other Fitness Tests to Qualify Air Force Recruits for Physically Demanding Specialties
RR-1789-AF, www.rand.org/t/RR1789


Fit for Duty? Evaluating the Physical Fitness Requirements of Battlefield Airmen
RR-618-AF, www.rand.org/t/RR618

Strength Testing in the Air Force: Current Processes and Suggestions for Improvements
RR-471-AF, www.rand.org/t/RR471

The Air Force Officer Qualifying Test: Validity, Fairness, and Bias
TR-744-AF, www.rand.org/t/TR744

Assessment and Selection for U.S. Air Force Special Warfare: Vol. 1, Defining Attributes and Designing Rater Training
RR-A549-1, forthcoming

U.S. Air Force Enlisted Classification and Reclassification: Potential Improvements Using Machine Learning and Optimization Models
RR-A284-1, www.rand.org/t/RRA284-1

OTHER DEPARTMENT OF DEFENSE (DOD)–SPONSORED RESEARCH

The Use of Standardized Scores in Officer Career Management and Selection
TR-952-OSD, www.rand.org/t/TR952
TRAINING PIPELINE

DAF–SPONSORED RESEARCH

Air Force Nonrated Technical Training: Selected Topics to Improve Efficiency
RR-2774-AF, www.rand.org/t/RR2774

The Relative Cost-Effectiveness of Retaining Versus Accessing Air Force Pilots
RR-2415-AF, www.rand.org/t/RR2415

Understanding Demographic Differences in Undergraduate Pilot Training Attrition
RR-1936-AF, www.rand.org/t/RR1936

Air Force Non-Rated Technical Training: Opportunities for Improving Pipeline Processes
RR-2116-AF, www.rand.org/t/RR2116

Reducing Attrition in Selected Air Force Training Pipelines
TR-955-AF, www.rand.org/t/TR955

Finding the Balance Between Schoolhouse and On-the-Job Training
MG-555-AF, www.rand.org/t/MG555

A User’s Guide to the Technical Training Schoolhouse Model

Managing Cost and Capacity Data in the Air Force’s Air Education and Training Command
RB-125-1-AF, www.rand.org/t/RB125-1

Organizing and Training for the Contested, Degraded, and Operationally Limited Space Force: Considerations Regarding General Officers, Career Field Sustainability, Training Pipelines, and the Civilian Workforce
RR-A547-1, forthcoming

OTHER DOD–SPONSORED RESEARCH

General Military Training: Standardization and Reduction Options
TR-1222-OSD, www.rand.org/t/TR1222
TRAINING EFFECTIVENESS

DAF–SPONSORED RESEARCH

Enhancing Performance Under Stress: Stress Inoculation Training for Battlefield Airmen
RR-750-AF, www.rand.org/t/RR750

Customized Learning: Potential Air Force Applications
TR-880-AF, www.rand.org/t/TR880

Common Battlefield Training for Airmen
MG-624-AF, www.rand.org/t/MG624

Cross-Cultural Skills for Deployed Air Force Personnel: Defining Cross-Cultural Performance
MG-811-AF, www.rand.org/t/MG811

OTHER DOD–SPONSORED RESEARCH

Meeting the Language and Culture Training Needs of U.S. Department of Defense Personnel: An Evaluation of the Language Training Center Program
RR-2555-OSD, www.rand.org/t/RR2555

Malleability and Measurement of Army Leader Attributes: Personnel Development in the U.S. Army

Active Component Responsibility in Reserve Component Pre- and Postmobilization Training
RR-738-A, www.rand.org/t/RR738

Training Cyber Warriors: What Can Be Learned from Defense Language Training?
RR-476-OSD, www.rand.org/t/RR476

Changing the Army’s Weapons Training Strategies to Meet Operational Requirements More Efficiently and Effectively
RR-448-A, www.rand.org/t/RR448

An Evaluation of the Implementation and Perceived Utility of the Airman Resilience Training Program
RR-655-OSD, www.rand.org/t/RR655

Innovative Leader Development: Evaluation of the U. S. Army Asymmetric Warfare Adaptive Leader Program
RR-504-A, www.rand.org/t/RR504

Enhancing Critical Thinking Skills for Army Leaders Using Blended-Learning Methods
RR-172-A, www.rand.org/t/RR172

Making Improvements to The Army Distributed Learning Program
MG-1016-A, www.rand.org/t/MG1016

New Tools and Metrics for Evaluating Army Distributed Learning
MG-1072-A, www.rand.org/t/MG1072

Improving the Army’s Assessment of Interactive Multimedia Instruction Courseware
MG-865-A, www.rand.org/t/MG865
OFFICER DEVELOPMENT

DAF-SPONSORED RESEARCH

Building the Best Offensive and Defensive Cyber Workforce: Volume I, Improving U.S. Air Force Training and Development
RR-A1056-1, www.rand.org/t/RRA1056-1

Improving Development Teams to Support Deliberate Development of Air Force Officers
RR-1010-AF, www.rand.org/t/RR1010

Targeting the Occupational Skill Pairings Needed in New Air Force Colonels
TR-759-AF, www.rand.org/t/TR759

Improving Development and Utilization of U.S. Air Force Intelligence Officers
TR-628-AF, www.rand.org/t/TR628

Improving the Development and Utilization of Air Force Space and Missile Officers
MG-382-AF, www.rand.org/t/MG382

Developing Army Leaders: Lessons for Teaching Critical Thinking in Distributed, Resident, and Mixed-Delivery Venues

Adapting the Army’s Training and Leader Development Programs for Future Challenges
TR-1236-A, www.rand.org/t/TR1236

Developing Military Health Care Leaders: Insights from the Military, Civilian, and Government Sectors
MG-967-OSD, www.rand.org/t/MG967

Developing U.S. Army Officers’ Capabilities for Joint, Interagency, Intergovernmental and Multinational Environments
MG-990-A, www.rand.org/t/MG990

Developing Senior Navy Leaders: Requirements for Flag Officer Expertise Today and in the Future
MG-618-NAVY, www.rand.org/t/MG618

Is the Navy Developing Flag Officers with the Expertise They Need?
RB-9297-NAVY, www.rand.org/t/RB9297

OTHER DOD-SPONSORED RESEARCH

Making the Grade: Integration of Joint Professional Military Education and Talent Management in Developing Joint Officers
RR-A473-1, www.rand.org/t/RRA473-1

Raising the Flag: Implications of U.S. Military Approaches to General and Flag Officer Development
RR-4347-OSD, www.rand.org/t/RR4347
LIVE, VIRTUAL, AND CONSTRUCTIVE TRAINING

DAF–SPONSORED RESEARCH

A New Framework and Logic Model for Using Live, Virtual, and Constructive Training in the United States Air Force
RR-A551-2, forthcoming

Investment Strategies for Improving Fifth-Generation Fighter Training
TR-871-AF, www.rand.org/t/TR871

Absorbing and Developing Qualified Fighter Pilots: The Role of the Advanced Simulator
MG-597-AF, www.rand.org/t/MG597

OTHER DOD–SPONSORED RESEARCH

Collective Simulation-Based Training in the U.S. Army: User Interface Fidelity, Costs, and Training Effectiveness
RR-2250-A, www.rand.org/t/RR2250

TRAINING ENVIRONMENT

DAF–SPONSORED RESEARCH

A Survey System to Assess Abuse and Misconduct Toward Air Force Students in Occupational Specialty Training
RR-2692-AF, www.rand.org/t/RR2692

An Assessment of Options for Increasing Gender Integration in Air Force Basic Military Training
RR-1795-AF, www.rand.org/t/RR1795

An Integrated Survey System for Addressing Abuse and Misconduct Toward Air Force Trainees During Basic Military Training
RR-964-AF, www.rand.org/t/RR964
WORKING WITH US

WHAT WE DELIVER

PAF’s studies and analyses are tailored to the needs of the sponsor. Generally, PAF provides:

• continuous interaction with PAF subject-matter experts throughout the project
• accessible, timely, and policy-focused reports that address senior leader concerns and recommend courses of action
• descriptive, transparent, and rigorous supporting materials that describe the project’s methodology and support the project’s conclusions
• as appropriate, additional outreach materials to help socialize the work to other interested stakeholders, such as the DAF, the U.S. Department of Defense, Congress, or the public.

SPONSOR IDENTIFICATION

All PAF research projects must be sponsored by a USAF general officer (GO) or member of the senior executive service (SES). Most sponsors assign one or more action officers (AOs) to manage the technical and administrative aspects of their PAF projects.

LINES OF FUNDING

DAF organizations can initiate a PAF research project in two ways:

1. **Centrally Funded** (also referred to as “core projects”). Air Force Studies, Analyses, and Assessments (SAF/SA; formerly HAF/A9) employs a rigorous, iterative, GO/SES voting process to select projects for inclusion in its annual research plan. This process accounts for about 70 percent of the projects that PAF will conduct during a fiscal year. Funding for these projects is part of a line item in the congressional budget and is awarded through the competitive selection process. Project topics are submitted in January and the research plan is approved by a steering group consisting of three- and four-star GOs between June and July. Maintaining a balance of projects across the DAF and the four PAF programs is key to this selection process.

2. **Sponsor Funded** (also referred to as “add-on projects” because they are add-ons to the core research agenda). This process accounts for about 30 percent of the projects that PAF will conduct during a fiscal year. Funding for these projects comes directly from the organization requesting the research and does not require a competitive selection process because the requesting organization is paying for the research (and not competing with others). DAF sponsors may initiate a PAF add-on research project at any time of the year by requesting the work, submitting required documentation, and transmitting organizational funds. Ideas and requests for PAF add-on projects may originate from a variety of circumstances (e.g., continuation of prior PAF work or new challenges). To initiate the process, a sponsor or AO typically contacts the appropriate PAF program director or subject-matter expert. The timeline of add-on projects is flexible.

PAF also supports DAF organizations in many informal ways. To request Workforce, Development, and Health (WDH) research reports highlighted here or to discuss pressing DAF challenges, contact the director of PAF’s WDH program at www.rand.org/paf/about/pafmanagement.