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Reducing Attrition in Selected Air Force Training Pipelines

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Summary

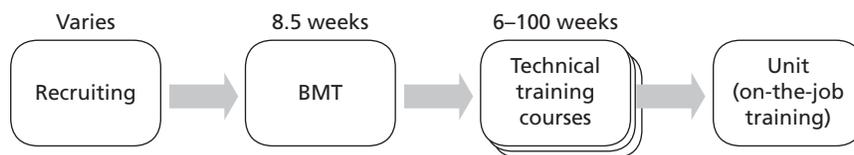
Introduction

The initial skills training process in the U.S. Air Force, commonly called *schoolhouse* or *technical training*, is illustrated in Figure S.1 as part of the larger training pipeline. It begins when an individual is recruited. For recruits entering a majority of career fields (including those studied in this report), the career field is guaranteed during the recruiting process. The individual then enters the Air Force approximately nine weeks prior to seat availability in the training program. If an immediate seat is not available at the time an individual is recruited, the recruit is placed in the delayed-enlistment program. When a seat becomes available, the recruit ships to basic military training (BMT) for a little more than eight weeks of training. After completing BMT, the airman transfers to technical training for specialty-specific training. After graduating, he or she is awarded the status of apprentice, designated by a 3 skill level in his or her AFSC, and ships to his or her duty assignment for employment in the specialty and continued on-the-job training.

The focus here is on initial skills training but does not exclude the other areas where applicable. The Air Force has a continuing interest in reducing high rates of attrition and training-block failures (called *washbacks*)—in which portions of training must be repeated during initial skills training. High attrition requires significantly more student entries into the schoolhouses, increasing training and recruiting costs. High washback rates increase needed schoolhouse capacity by requiring that seats be set aside for students who need to retake training blocks, and the higher rates incur greater costs by increasing training time.

That concern is shown in Table S.1; in FY 2001–FY 2008, initial training costs amounted to about \$1.3 billion per year. Attrition and washback rates averaged 8 percent and 21 percent, respectively, which led to attrition and washback costs of \$112 million per year. Thus, reductions in attrition and washbacks in career fields with high rates can result in significant cost savings.

Figure S.1
Generic Training Pipeline



RAND TR955-S.1

Table S.1
Key Initial Training Factors

Category	Item	Factor
Initial training costs	Approximate annual number of recruits	34,000
	Average length of initial training	22 weeks
	Average training cost per recruit per week	\$1,700
	Approximate cost of initial training	\$1.3 billion ^a
Attrition costs ^b	Average attrition	8%
	Estimated cost of attrition	\$67 million
Washback costs ^c	Average washback	21%
	Estimated cost of washback	\$67 million

NOTE: Population and average lengths are based on FY 2008 data. Attrition and washback averages are based on FY 2001–FY 2008 data.

^a The approximate cost of initial training is calculated by multiplying the approximate number of recruits, the average length of initial training in weeks, and the average training cost per recruit per week. Considering significant digits, $34,000 \times 22 \times \$1,700 = \$1.3$ billion.

^b Attrition costs include training individuals (half-length) who then attrit (\$51 million) and the cost of recruiting additional personnel (\$16 million).

^c Washback costs are based on one-quarter of average training time.

Given these costs, AF/A1P asked PAF to examine and recommend methods for reducing training attrition in several enlisted career fields. AF/A1P's goal was to maximize the fiscal impact of implementing any recommendations we made, by selecting specialties with the highest attrition and washback costs.¹ Five initial skills training specialties were selected for examination: PJ, EOD, CCT, ATC, and AGE. In the following year, AF/A1P added four other specialties: operations intelligence, network intelligence analysis, Far East linguist, and Middle East linguist.

In approaching the task, we reviewed the extant literature, incorporating ideas as appropriate, and focused on two approaches. First, as an exploratory investigation into possible causes of attrition, we visited each of the training bases and talked with students and instructors about reasons for high attrition. Second, in a parallel effort, we evaluated alternative selection tools that might reduce attrition. We combined multiple USAF databases to determine relationships between personnel data and training outcomes in the subject AFSCs. We used regression techniques to develop mathematical models, which evaluated the usefulness of these tools. Additionally, the interviews led to other analytic approaches to investigate attrition causes or alternative selection tools.

We also reviewed corollary components of the accession pipeline (BMT, recruiting, and classifying) and talked with subject-matter experts in each of these areas.

¹ Attrition occurs when the student fails to complete the course. Attrition can occur at any point in the training. Attrition reasons can vary from academic failure to health issues to behavior concerns. Washbacks occur when the student has to repeat some portion (also called a *block*) of the course. Some individuals wash back numerous times before graduating or attriting.

Over the course of the two-year research period, we briefed numerous senior decision-makers on our findings. Consequently, many of the recommendations have been or are in the process of being implemented.

The results of the analysis fall into two categories: specialty-specific findings and cross-cutting findings.

Specialty-Specific Findings

During the analysis, we discovered that each specialty we examined had issues specific to its training.

Air Traffic Control, AFSC 1C1X1

Over the years, much research has been accomplished recommending the use of a screening test for ATC selection.² A test used by the Federal Aviation Administration (FAA) would require an hour and a half to administer and might be accomplished at the recruiter's office rather than the Military Entrance Processing Station (MEPS).³ This would not be unusual because the Air Force conducts the physical ability and stamina test (PAST) at individual recruiter locations.

Combat Control, AFSC 1C2X1

Self-initiated elimination (SIE), the USAF term for voluntary disenrollment, accounted for 75 percent of all attrition from the CCT pipeline at Lackland and Keesler Air Force Bases (AFBs) between October 2006 and April 2008. The majority of SIE cases were rooted in the student's belief that CCT was not an appropriate specialty for him.⁴ This suggests that more information is needed at the recruiter's office that explains what the job entails.

There appears to be some correlation between officers training with the team and a lower attrition rate. The data obtained from the schoolhouse were sparse but showed a statistically significant 20-percent increase in retention. We suggest a small test of spacing officer trainees out one to a class.

Another cause of CCT attrition concerns physical fitness. We discuss these observations about physical fitness and the Fit Flight concept under PJ findings later in this summary.

Operations Intelligence, AFSC 1N0X1

Interviews with students revealed that some instructors routinely leave the students in unsupervised—and reportedly unproductive—study periods during a majority of the blocks. This course is a candidate for self-paced learning because some students can easily memorize the information and finish the program much more quickly than others can. Additionally, the lack of supervised study time results in a poor atmosphere for some students trying to study and memorize information.

² We identified a dozen such studies.

³ Classification testing, in the form of the Armed Services Vocational Aptitude Battery (ASVAB), is completed at a MEPS, but the test would have to be approved by the Manpower and Accession Policy Working Group. A 1.5-hour test would not likely be approved. Therefore, the Air Force is testing a shortened version. Additionally, the test would have to be administered by proctors to maintain test security.

⁴ PJ and CCT specialties are open to men only.

During the period of the research, a few instructors were first-assignment instructors, having gone straight from training to instructor. The students, especially prior-service (PS) students, found these instructors to be subpar, lacking experience to back up the instruction.

Interviews of instructors and students suggested that the specialty description is not representative and might glamorize the job. They also confirmed that some academic failures are deliberate schemes to get reclassified.

The training requires a lot of memorization, and the job requires public-speaking ability, suggesting that this specialty might be amenable to a screening test, possibly an oral one.

Far East and Middle East Linguists, AFSCs 1N3X4X and 1N3X5X

Interviews with students and instructors resoundingly emphasized the importance of motivation. Dornyei (2001) confirmed the importance of enthusiasm, commitment, and perseverance in learning a foreign language. The length and intensity of the phase program decrease motivation.⁵ Students did not feel that the military training leaders (MTLs), with no experience learning a language, understood the difficulty of the program.⁶

Language requirements are determined by operational needs. And not getting a preferred language can also decrease an individual's motivation. Yet, training squadrons did not have the authority to allow students with similar Defense Language Aptitude Battery (DLAB) scores to make mutually agreeable language switches.

The Defense Language Proficiency Test (DLPT) is an all-or-nothing test at the end of the yearlong program. Squadron statistics showed that, over the past three fiscal years, 76 percent of airmen completed the basic course of study and that approximately two-thirds of these students passed the DLPT at proficient levels, meaning that the overall completion rate was near 50 percent—higher in some languages, lower in others. This pass rate, among the Air Force's most highly qualified airmen (as measured by the ASVAB), leads us to question whether expectations are too high. The DLPT is under recalibration, but, if the most-qualified recruits are failing at a 50-percent rate, are expectations too high? Is this specialty too demanding for enlisted personnel? Or could students who fail to reach required language proficiency be used in some restricted mode and continue to learn the language while on the job?

Network Intelligence Analysis, AFSC 1N4X1

The primary concern of students was the length of the training: approximately five months. Many students felt that the pace was slow, despite the tremendous amount of information to absorb, and that some material would be better deferred to on-the-job training. Self-pacing might be an option in this course. Also, studying is difficult because of the classified nature of the work and the need to go to a secure facility to study classified material.

Additionally, at the time they were recruited and classified, many students did not understand what the specialty involved. Understandably, many aspects of the specialty are classified, but students felt that a better description of the specialty was possible.

⁵ The phase program is designed to gradually take recruits from the very controlled environment they recently experienced in BMT to a less strict environment via a series of graduated privileges granted over an extended period. The privileges do offer relief from the BMT environment but never equal the privileges that an airman has in the operational Air Force. Consequently, over time, they have a negative impact on morale.

⁶ MTLs supervise and execute the military phase of the instruction (nonnonvocational training), which is a continuation of the training received in BMT.

Aerospace Ground Equipment, AFSC 2A6X2

AGE attrition, 4.4 percent in FY 2007, has dropped from double-digit levels (FY 2002–FY 2004) to single-digit levels in the past few years.⁷ Washbacks remain high, ranging from 17.1 percent to 30.3 percent.⁸ We found no direct correlation between washbacks and attrition, although one might infer a relationship. We calculated that, for this AFSC, one attrited individual costs the same as 2.2 washbacks, and, if AGE cut its washback rate in half (down to 15 percent) by eliminating rather than washing back personnel, the attrition rate could increase to 10.9 percent without any increase in costs.

Training squadron (TRS) personnel worked hard to reduce previously high attrition levels. They reviewed the reading level of materials, instructor performance, and test questions and took specific steps to fix problems identified internally.

Our interviews revealed that the course might be longer than necessary. This was the majority view among the instructors interviewed. Without any prompting, students also volunteered opinions that the course was too long. There is some correlation between course length and attrition. We would not expect much savings in attrition costs because of a shorter course, but we might see savings in reduced washbacks and would definitely see overall savings in basic course costs from eliminated training days and associated expenses.

Pararescue, AFSC 1T2X1

The PJ career field eliminates more than 70 percent of the entries into its multicourse pipeline. Fortunately, most of the eliminations occur in the indoctrination course, the very first course in the pipeline. If attrition is going to be high, and it historically has been, then this is the most cost-effective place for attrition to occur.

Previous research shows that higher levels of physical fitness are correlated with success in the indoctrination course. The majority of students interviewed felt that their fitness levels declined during BMT. Some mentioned being ridiculed by their BMT instructors for attempting extra push-ups. The Air Force has instituted Fit Flights, designated by blue armbands, for certain career fields with exceptional physical demands. However, the members of Fit Flights are interspersed among regular trainees and do not engage in additional physical exercise. We believe that the concept of Fit Flights is good but that Fit Flights should be segregated for physical training (PT) to conduct PT at a higher level. Although this might engender elitist attitudes, we found no evidence that this would be bad for battlefield-airman training.⁹

Explosive Ordnance Disposal, AFSC 3E8X1

EOD attrition has averaged 33 percent over the past eight years in the apprentice course at Eglin AFB. The primary reason for failure is academic deficiency (77 percent); the second-largest reason is voluntary disenrollment (14 percent). The Air Force has the highest attrition rate of all four services at this joint school. This appears directly related to the proportion of non-PS (NPS) trainees: More than three-quarters of USAF trainees are NPS, while sister services are more likely to send midcareer personnel. When compared by pay grade, the USAF

⁷ Latest attrition figures for AGE were 4.1 percent for FY 2008 and, as of July 1, 2009, 5.6 percent for FY 2009.

⁸ Washbacks for AGE were 15.5 percent in FY 2008 and, as of July 1, 2009, were 23.4 percent in FY 2009.

⁹ Battlefield airmen are also referred to as *special forces* in the generic military use of the term.

attrition rate is similar to that of the Army. Increasing the ratio of PS students should lower the overall attrition rate.

The Air Force also utilizes the shortest preparation program prior to EOD training. While the Army and Navy focus on preparation (a ten-week course), the Air Force uses a preliminary course (six days), effectively a screening program, prior to sending its trainees to apprentice training. The Army program is longer than the USAF program but does not result in much difference in the overall attrition rate. Navy attrition over its preliminary program is similar to USAF attrition (both approximately 50 to 60 percent). But the Navy program reduces attrition considerably at the joint school. Although the Air Force could reduce attrition by increasing the preliminary-school length, greater savings can be realized by changing the proportion of PS students.

Previous research indicates that the use of noncognitive screening tools can reduce attrition. The Air Force is currently conducting research on one such tool, the Emotional Quotient Inventory (EQ-i®). Following our literature review, we recommended the use of a noncognitive test, potentially the EQ-i, for screening entrants into this specialty.

Cross-Cutting Findings

We found that some issues were applicable to the majority of specialties we examined.

Recruiting

In each of the nine specialties, 20 percent or more of the trainees specifically mentioned getting poor information from their recruiters. The majority found information from friends, family, and the Internet (YouTube was frequently mentioned). A majority of trainees agreed that more and better information from recruiters would have been helpful, especially in terms of what the training would be like, allowing them to mentally prepare themselves for the demands of the training. There were some cases of exemplary recruiter assistance, such as putting recruits in touch with individuals in their prospective career fields. We could not directly estimate the impact that better information from the recruiters had on retention, but, with 75 percent of CCTs voluntarily disenrolling, it could be substantial. The interviews included unsubstantiated instances of recruiters gaming the system by suggesting to recruits that they could sign up for the CCT specialty to get into the Air Force quickly and then self-eliminate if they did not like it.

Phase Program

The student interviews revealed grievances with the phase program, a schedule of restrictions designed to maintain discipline after BMT.¹⁰ The longer an individual had been in the phase program, the greater the resentment he or she expressed during the interviews. We believe that the phase program is good overall and should not be discontinued. We believe that the majority of MTLs do not abuse their position of authority, as some were alleged to have done. But we also believe that changes to the phase program are warranted to prevent the few excesses that do occur. Those misuses of authority ultimately find their way home (literally) to negatively

¹⁰ The phase program, as executed during the course of this research, consists of three separate phases, with decreasing restrictions as one progresses through the phases.

affect USAF recruitment. In addition, the system is naturally perceived as unfair. Students in shorter courses graduate from the phase program sooner and consequently enjoy a more lenient disciplinary environment at their first duty station, which, in effect, penalizes airmen who are enrolled in longer training courses (typically airmen with higher ASVAB scores). Finally, although the phase program probably does not directly cause attrition, it is a key factor in adding stress to the recruit's daily life. Ultimately, any additional stress, such as financial difficulties or family problems, can overwhelm the recruit, destroying any motivation to finish the program.

We recommend multiple changes to phase III. At a minimum, at some point, it should not be possible to send an individual back to phase I, barring an Article 15 or some serious infraction.¹¹ Additionally, we recommend making the phase program equal length for all specialties and suggest six to eight weeks as an appropriate length.

Training-Base Purpose

At Lackland, the base is designed around the recruit. Many service and support facilities are open outside the hours of the training day. At all other training bases, the base operates on hours like a nontraining base, with limited availability of services and support after the duty day. For routine medical appointments, other appointments, and errands requiring more time than the one-hour lunch break, the trainee must be excused from training. In many cases, this is a contributing factor in washbacks and, potentially, in attrition. Even simple tasks, such as sending a package through the post office during the lunch hour, can be complicated by the fact that all the other trainees are trying to do the same thing. We recommend that, to serve the trainee, training bases consider adjusting the work schedules of clinics, administrative services, postal services, and those performing clothing alterations.

Linked to training-base hours is the length of the training day. Some of the instructors interviewed suggested that information covered in eight hours could just as easily be taught in six. Reducing the training day to six hours would provide the trainees with time to run errands and make clinic appointments without missing instruction. There is also a question of trainees retaining material taught in an eight-hour day. Some squadrons use the extra two hours for hands-on and simulation activity to reinforce what was taught during the first part of the day. The extra two hours would also provide some needed down time to trainees, a comment heard repeatedly in the student interviews.

Documentation

It became apparent during the course of the research that Air Education and Training Command (AETC) Form 125A, which is used to record the reason for attrition, was not used consistently among bases.

Areas for Further Research

We did not research BMT, but we did talk with BMT personnel at the 319th Classification Squadron. We learned that medical attrition is high and that individuals in a holding status

¹¹ Article 15 of the Uniform Code of Military Justice defines the commanding officer's options for nonjudicial punishment. See U.S. Department of Defense (DoD), undated.

attrit at a high rate. Part of the reason is that individuals in hold for discipline issues are grouped together with medical holds, and the medical holds receive little motivation to continue in the Air Force. We heard that the Army has substantially reduced its medical-hold attrition, but we did not investigate those claims. We recommend further research into medical holds.

We also reviewed the program used to classify individuals. Our discussion with users indicated that the model is sensitive to weights assigned to various factors. Although we recognized that it is impossible to satisfy every person's specialty preference, there might be room for improvement. We recommend further research into specialty classification.

Recommendations

Specialty-Specific Recommendations

- Shortening the AGE course should be considered.
- Entries to the EOD specialty should include a higher percentage of PS trainees; a noncognitive screener should be used.
- The Fit Flight concept for PJ and CCT recruits should be continued. Fit Flights should be populated entirely by Fit Flight recruits with additional physical training. A few battle-field airmen should be used as training instructors in BMT.
- Officers attending combat rescue officer training should be spaced out such that at least one officer is in each CCT training flight at Keesler.
- An ATC screener should be used for classification in both ATC and CCT specialties.
- Operations intelligence and network intelligence courses should be reviewed for possible shortening. First-assignment instructors should not be utilized for training. Self-pacing for memorization-heavy training should be used.
- Linguist training placement should be improved to match more airmen into preferred languages.
- Further research is needed to determine whether airmen who score at less-than-proficient levels after completing language training can reach proficiency through on-the-job training.

General Recommendations

- Modify the phase program, potentially adding a phase IIIb at six weeks from which recruits would not be phased back unless a serious incident occurs (Article 15 nature). Another alternative would be to end the phase program for all AFSCs at six to eight weeks.
- Have training bases adjust the service and support facility operating hours around the trainee, or reinstate the six-hour training day.
- Have career field managers (CFMs) provide more information to recruiters about the specialty, the training, and how to be prepared.¹²
- Conduct further research into medical holds at BMT and the classification process.
- Guidance for Form 125A packages should be clarified because inconsistencies among the bases made them difficult to analyze.

¹² The CFM provides central oversight for career-field education and training, chairs the utilization and training workshops, and addresses day-to-day career-field operations issues and specialty concerns.