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RETRAINING PROGRAM FOR AIR FORCE ENLISTED PERSONNEL: AN EVALUATION

By

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November 1983

Final Report

AIR FORCE SYSTEMS COMMAND
BROOKS AIR FORCE BASE, TEXAS 78235

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The impact of changing occupational specialties on the performance, adjustment, and job and career progress of retrained enlisted personnel was evaluated. Approximately 40,000 enlistees were identified who had retrained from one Air Force Specialty (AFS) to another between 1973 and 1977. Comparisons were made between retrainees and non-retrained airmen in service during the same time period. Criterion measures were obtained from historical personnel data files and from a field survey of retrainees and their supervisors.

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The major findings were as follows. In formal training programs for their new AFS, the performance of retrainees was comparable or superior to non-retrained airmen with equivalent aptitudes. Supervisors judged the skills, abilities, and performance of retrainees on the job to be comparable to non-retrained personnel. Retrainees' job satisfaction, morale, motivation, and interpersonal relations indicated that adjustment to the job change was satisfactory. Measures of time required to upgrade skill levels indicated that, compared to the average for Air Force members, retrainees progressed at the same or a faster pace. However, promotion indices revealed that opportunity for military grade advancement was somewhat less for retrainees. Retention rates were comparable for retrainees and non-retrainees in their second and subsequent enlistment terms. Comparisons between volunteer and selective (non-volunteer) retrainees indicated that selectees performed at slightly lower levels and had poorer job attitudes.

The findings are viewed collectively as demonstrating that retraining airmen to balance manning requirements in AFSs is a sound Air Force management practice. The Airman Retraining Program objective of interchanging enlisted personnel between military occupations is accomplished with minimal impact on the individual participants. The change in specialty does not appear to be viewed by retrainees as a stumbling block to the attainment of their military career goals. Supervisors do not believe that retraining interferes with job accomplishment or personnel morale. Overall, the program operates smoothly and promotes the successful transfer of enlistees into second military occupations.

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This is a Special Report prepared for the Chief, Force Programs Division, Directorate of Personnel Programs (AF/MPPP) in response to RPR 77-12, Retrainee Follow-Up Study. Additional RPR requirement managers were offices of the Air Force Manpower and Personnel Center (MPCR and MPCM).

PREFACE

This Special Report concludes the Air Force Human Resources Laboratory research and development (R&D) efforts in response to RPR 77-12, Retrainee Follow-Up Study. The majority of the R&D was accomplished under Work Unit 77340804, Evaluation of the Air Force Airman Retraining Program. Part of the data was collected by Research Applications, Incorporated (Contract No. F33615-80-C-0001) under Work Unit ILIR0048, Survey of Retrained Air Force Enlisted Personnel.

These efforts relate to the Laboratory's R&D goal of providing Air Force managers with strategies for managing and utilizing the career force. Findings are particularly germane to the sub-objective of improving the enlisted assignment system by establishing utilization guidelines that enhance the transferability between occupations, career progression, and tenure of retrained airmen.

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I. BACKGROUND

Early in 1978, the Air Force Human Resources Laboratory began an evaluation study of the Airman Retraining Program at the request of Air Force managers responsible for program policy and operation. Work was accomplished in response to a Request for Personnel Research (RPR 77-12, Retrainee Follow-Up Study). This was the first research and development (R&D) to systematically track the progress of enlisted personnel who had retrained into a second military occupation.

The R&D goal was to provide retraining managers with empirically based information and guidelines for improving the current retraining system (Air Force Regulation 39-4). A major purpose of this study was to identify those factors that promote successful retraining. The factors considered included both the characteristics of the individual being retrained and the circumstances of the reassignment action. Other information relevant to program management in general or to specific policy concerns was also considered.

A multi-phased investigation was designed to address four principal issues identified in the RPR by retraining managers. These issues were (a) retrainees' performance in technical training for the second specialty, (b) subsequent performance and adjustment on the job, (c) overall job and career progression after retraining, and (d) differences between voluntary and selective (involuntary) retrainees.

Approximately 40,000 airmen who changed Air Force Specialties (AFSs) between 1973 and 1977 were identified. Information on retrainees and on comparable non-retrained airmen was obtained from two sources. Computerized data bases containing occupational, personnel, and demographic information on the enlisted force were used to evaluate technical school outcomes and to track skill and grade progression. In addition, a large-scale field survey was conducted during 1980. Retrainees and their supervisors responded to inquiries on this survey concerning job performance and adjustment and selective retraining issues.

II. FINDINGS

Technical School Performance

An early measure of progress for a retrainee in a new AFS is performance in formal technical training schools. Training outcomes for approximately 20,000 retrainees who attended entry-level technical schools were compared to those for about 230,000 non-prior service recruits (non-retrainees). In general, retrained airmen performed as well as, and in many schools better than, non-retrained airmen. This was true even though retrainees had lower aptitudes on the average than did non-retrainees. Comparing percentages, fewer retrainees attrited from training, and the retrained graduates typically obtained higher final school grades than did non-retrainees with equivalent aptitudes as measured by the Armed Services Vocational Aptitude Battery (Skinner & Alley, 1983a).

The characteristics that influenced the training achievement of retrainees were aptitude, amount of military service, and type of background experience. As would be expected, retrainees with higher aptitudes performed better. Performance improvements were also noted for retrainees with longer military tenure, until around the end of the fourth enlistment period. Performance tended to decline, however, among airmen who retrained after the 16th year of service. Analyses of type of experience acquired prior to retraining indicated that transfers between AFSs with common selector aptitude requirements usually resulted in higher technical school achievement. That is, airmen who retrained between AFSs in the same aptitude area (e.g., Mechanical to Mechanical) tended to perform better than those who changed into different aptitude areas (e.g., Administrative to Mechanical). An exception was noted for airmen who retrained from Electronic AFSs. These airmen typically achieved the highest levels in training regardless of their retraining AFS affiliation (Skinner & Alley, 1983a).

Aptitude Waiver Policy. A second interest in the analyses of technical school performance was to determine whether retrainees performed well enough to justify discounts in aptitude requirements and, if so, the amount of the allowable

discount. Results indicated that retrainees with aptitudes 10 points below the entry cutoff score met the same academic standards during training as did non-retrainees who scored at the cutoff. The same finding applied to graduation rates in some but not all schools. Analyses further indicated that in almost all AFSs, retrainees achieved final school grades that were high enough to justify even larger aptitude discounts (Skinner & Alley, 1983b).

Job Performance and Adjustment

After the performance in technical training was evaluated, the next questions related to how well the retrainees performed once they were on the job in the new AFS and how well they adapted to their new occupation. About 13,000 retrainees and their first-line supervisors rated performance and adjustment factors on a field survey. As a frame of reference for measuring retrainees' progress, supervisors were also asked to evaluate their non-retrained subordinates (about 5,200 cases) on the performance and adjustment measures (Skinner, 1981).

Job Skill, Ability, and Performance. The ratings assigned by supervisors to both retrained and non-retrained airmen indicated that their job skill, ability, and performance were satisfactory (Appendix A, Table A-1). Mean values clustered near a rating of "Good" (scale point 4) on a 5-point, poor-to-excellent appraisal scale. Except for supervisory skills, supervisors gave non-retrainees slightly more favorable ratings on the average. The magnitudes of these differences were so small (usually less than .25 scale point) that they were not judged to be truly meaningful. The conclusion drawn was that retrainees' job knowledge, potential for promotion, and quality and amount of work performance were comparable to those of non-retrainees.

Adjustment to the Retraining Specialty. Supervisors provided information on a comparable set of adjustment measures for retrainees versus non-retrainees (also shown in Table A-1). Supervisors gave both groups high marks on their job attitudes, motivation, and interpersonal skills. Except for attitude toward military life, the non-retrained airmen received more favorable appraisals on the average than did the retrained airmen. However, these differences– typically less than .10 scale point–were viewed as negligible and of no practical significance. Overall, the supervisors' appraisals were interpreted to mean that the typical retrainee was adjusting well to the change in military occupation.

Supplementary reports on adjustment were obtained from the retrainees themselves. They were asked to describe their perceptions and experiences in both their past and current specialty. Their ratings for the current AFS were consistently higher than for the former AFS. Overall, retrainees (a) had more positive attitudes in terms of job satisfaction, utilization of talent and training, and general morale, (b) were more highly motivated to perform well and to learn required job skills, and (c) were somewhat more satisfied with their relationships with supervisors, subordinates, and co-workers in their current specialty (Skinner, 1981).

Job and Career Progression

The third issue addressed in the study was job and career advancement. The skill upgrading, promotion, and retention rates of retrainees were evaluated relative to Air Force averages, as defined by rates for the rest of the enlisted force. To accomplish this, a historical data base on 40,000 retrainees and 480,000 non-retrainees was developed. Additional information on job and career progression was collected from the field survey (Skinner, 1981).

Skill Level Upgrading. Skill level upgrading rates were assessed to determine whether retrainees attained job proficiency and career knowledge qualifications for the new AFS at an acceptable pace. The normal progression rate was set by the force average. The number of months spent in the 1-, 3-, and 5-levels before upgrading to the next level was computed. Results, shown in Table A-2, indicated that upgrade times for retrainees from helper to apprentice (1- to 3-level) were slightly more than for non-retrainees (6.4 months vs. 5.8 months, respectively). However, upgrade times from apprentice to journeyman (3- to 5-level) and from journeyman to supervisor/technician (5- to 7-level) were generally less than those for non-retrainees with the same amount of experience in the AFS, as might be expected.

The finding from historical files that retrainees progressed satisfactorily in skill upgrade training was supported by reports from the field survey. Two questions posed to supervisors were how much time and how much help do retrainees

need to upgrade their skill level as compared to non-retrainees. About half of the supervisors responded that the two groups were comparable in both respects. Another 38% judged that retrainees required less time and less assistance to meet upgrade standards. The retrainees were asked if the skill level they held was appropriate for their technical ability and job knowledge. About 76% reported that this alignment was proper.

Promotion. Historical data on promotions were evaluated to assess the impact of retraining on military career progression. The focus was on promotions from grades E-5 (Staff Sergeant), E-6 (Technical Sergeant), E-7 (Master Sergeant), and E-8 (Senior Master Sergeant). Two promotion indices were computed for each of the four groups: (a) the percentage of airmen in each grade who were promoted and (b) the mean number of months spent by promotees in the previous grade (Table A-3). Since time in service figures heavily in military grade advancement, retrainees and non-retrainees were equated on the time-in-service factor. The overall finding, considering both indices for grades E-5 through E-8, was that promotion opportunities were slightly less for retrainees. The data indicated that a lower percentage of retrainees in each grade was promoted compared to non-retrainees. The percentage difference was most pronounced for E-5 retrainees. About 8% fewer retrainees than non-retrainees in grade E-5 were promoted to grade E-6. Differences were smaller for grades E-6, E-7, and E-8 (2 to 5%). Retrainees who were promoted spent roughly the same amount of time in grade as did non-retrainees with the same service experience. The difference in average time in grade between E-5 retrainees and non-retrainees who were promoted to E-6 did not exceed 2 months. Similarly, time-in-grade differences were small (usually less than 4 months) in the E-6, E-7, and E-8 groups.

Survey data on promotion opportunity were consistent with historical data. On the average, retrainees and supervisors both reported that retraining had little impact on promotion. Retrainees were somewhat more likely than were their supervisors to report that their promotion opportunities had been hampered by retraining (Skinner, 1981).

Retention. To determine if retrainees continued in military service at a rate comparable to the Air Force average, the retention of active duty airmen at the 4-, 8-, 12-, and 16-year decision points was determined. Retention patterns at the 8-, 12-, and 16-year points were highly similar with roughly the same percentages of retrainees and non-retrainees continuing on active duty (Table A-4). However, a marked difference occurred at the 4-year point; about 64% of the retrainees versus 44% of the non-retrainees were on active duty a year later, probably due to retraining in conjunction with second-term reenlistment.

To supplement historical retention data, information about reenlistment intent was collected from the field survey. Both retrainees and supervisors reported that retraining had a positive effect. Reenlistment intent, as reported by retrainees, was relatively high. Excluding those who planned to retire, approximately 72% of the retrainees had plans to reenlist at the end of their current enlistment period (Skinner, 1981).

Selective Retraining

The final major issue addressed in the study was voluntary versus selective (non-voluntary) retraining. Selectees were deliberately oversampled for the field survey to ensure sufficient cases for analyses. They represented 21% of the survey sample versus 79% volunteers (Skinner, 1982).

Retrainees' Appraisal of Job Attitudes, Work Assignments, and Training. To evaluate the impact of voluntary or involuntary job transfers, volunteers and selectees were compared on job attitudes, work assignments, and training in their past and current AFSs. The major finding was that volunteers and selectees reported significantly different experiences in the two AFSs. Volunteers assigned more favorable ratings to the current AFS. However, selectees' descriptions of their retraining AFS were less positive than of their previous AFS. Selectees reported (a) lower job satisfaction, (b) poorer use of talent and training, (c) less opportunity for responsible work assignments, and (d) lower quality of training for job duties in the retraining AFS (Skinner, 1982).

Supervisors' Appraisals of Adjustment and Performance. Reports from supervisors were in line with those from selectees themselves. While selectees' attitudes were judged to be satisfactory, they consistently received lower ratings on adjustment measures from supervisors than did either volunteers or non-retrainees. Similar results were obtained for selectees on job skill, ability, and performance indicators. Clearly, supervisors viewed volunteers—more so than selectees—as adjusting and performing at levels comparable to those of non-retrained airmen (Skinner, 1982).

Selective Retraining Policy. Information on how policies could be restructured to provide a more favorable climate for selective retraining was obtained by asking both retrainees and supervisors for their views on issues related to involuntary AFS changes.

Retrainees were asked to judge what the overall impact of selective retraining would be on their productivity, motivation, and morale in the new job and on their desire to remain in military service under three policy-related conditions. The conditions were selective retraining (a) without a choice of retraining AFS, (b) with several retraining AFSs from which to choose, and (c) with choice of base of assignment in conjunction with retraining. Selective and volunteer groups were highly consistent in their judgments of the effects of the policy alternatives on all measures. Average ratings of impact of selective retraining were clearly negative without a choice of AFS. With a choice of several AFSs or of base of assignment, the retrainees judged that their productivity, motivation, morale, and retention would not be appreciably affected by selective retraining (Skinner, 1982)

The supervisors' viewpoints were solicited as to whether there should be a cutoff time for involuntarily retraining enlistees out of their present AFSs and, if so, at what point this cutoff should be. The majority of supervisors (75%) favored a cutoff time not later than the 15th year of service. A minority opinion (21%) was that there should be no time restriction on involuntary retraining.

III. CONCLUSIONS

The following major conclusions are supported by the analyses.

1. In technical training for their second AFS, retrainees' academic achievement and training completion rates are comparable, and in most schools superior, to those of non-prior-service recruits with equivalent aptitudes. This finding probably reflects tenure and motivational influences. Retrainees appear to capitalize on their past service experiences. Further, their longer tenure may strengthen their commitment to a military career and, hence their motivation to perform well in training for their new AFS (Booth, McNally, & Berry, 1975).

2. Training achievement levels for retrainees depend on their aptitude, time in service, and type of background experience. In the analysis of background experience, support was found for the notion that certain occupational skills and knowledge transfer to the new specialty.

3. Retrainees with lower aptitude (10 points or, in some occupational groups, more) perform in training as well as non-retrainees at the aptitude cutoff minimum. Again, motivation and experience are likely to be contributing factors.

4. Supervisors judge the skill, ability, and performance of retrainees on the job to be comparable to those of non-retrainees.

5. Retrainees adjust satisfactorily to the job change as evidenced by job attitude, motivation, and interpersonal relations ratings.

6. Job skill level upgrade times for retrainees are as fast or faster than Air Force averages.

7. Promotion opportunity is somewhat less for retrainees. The characteristics of some airmen who are retrained (e.g., marginal performers, security risks) may also operate to retard progression through the military non-commissioned officer grades.

8. Retrainees at 8-, 12-, and 16-years-of-service points are retained in proportions comparable to non-retrainees. Comparable retention rates for retrainees can be expected to continue. Their stated intentions for reenlistment are positive, and self-reports of propensity to reenlist are known to be highly related to actual reenlistment decisions (Gould, 1976).

9. The performance and adjustment of selective retrainees are slightly poorer than for voluntary retrainees. An explanation may lie in the divergent retraining reasons and circumstances reported by the two groups. Throughout the retraining application process, volunteers played not only a more willing but also a more active role. In most cases, volunteers initiated their own retraining action, citing bad working conditions, a boring job, or family concerns as reasons for wanting to leave the AFS. On the other hand, selectees reported that they rarely started the application process and most felt, in retrospect, that Air Force needs alone were served by the retraining activity. Selectees were more often retrained, because they disqualified for their earlier AFS or because the AFS had personnel overages or equipment phase-outs.

IV. APPLICATIONS

Conclusions drawn from the study have important implications for managing job selection and assignment of retrainees. Analyses demonstrate that success among retrainees can be improved by considering their aptitude, time in service, and background experience. Airmen with higher aptitudes and with longer military tenure up to (but not more than) 16 years of service are better candidates for retraining. Job reassignments should also take advantage of occupational skills and knowledge acquired by airmen in their former specialty. The utility of background experience information, even information as general as aptitude area alone, was demonstrated. Greater benefits from transfer of training would be realized if technology were developed to define job skill and knowledge requirements and to distinguish overlap of requirements between AFSs. Even so, R&D has progressed to the stage at which a computer-based job assignment system for retrainees would be feasible. The assignment algorithm should incorporate findings on the characteristics of individual retrainees as well as on the voluntary or selective circumstances of the job change. Assignments that more closely match candidate capabilities to retraining specialty requirements would improve the payoff to the Air Force through reduced training costs and increased personnel productivity and retention.

Other applications of current findings exist with regard to aptitude waiver policy. The findings support the current operational policy of allowing waivers of up to 10 points of the job entry aptitude requirement for retrainees. Analyses further indicate that a more liberal aptitude discount would be defensible in most specialties in the event that manning requirements for retrainees increased sharply. Retrainees with 15 points discounted could be expected to maintain acceptable academic performance in formal training schools.

The Air Force should consider adopting a policy that sets time-in-service cutoffs for retrainees. Analyses of training outcomes in technical school showed that performance tended to decline among airmen who were retrained after the 16-year point. Reports from supervisors on selective retraining issues substantiate the recommendation for a time-in-service cutoff policy. Most supervisors reported that airmen should not be subjected to compulsory retraining after their 15th year. The consistency of findings from different data sources argues strongly for a cutoff time not later than 16 years and probably earlier for airmen retrained under non-voluntary conditions.

Additional information on selective retraining was identified to reduce some of its negative impacts. The introduction of new opportunities for choices into the retraining decision system would be expected to have a mitigating influence on the consequences of involuntary job transfers. The options evaluated in the study should not be interpreted to be the best or only ones to make available to prospective selectees, but the ratings do demonstrate the importance retrainees attach to having alternatives for consideration. Selective retraining incentives and options, such as AFS and base of choice, are recommended to retraining managers, with the recognition that avenues for implementation may be limited given other constraints on the Air Force assignment system. Regardless, job changes made on a selective basis should continue to be done only to the extent needed to fulfill essential manpower requirements.

In summary, the study findings are viewed collectively as demonstrating that retraining airmen to balance manning requirements in AFSs is a sound Air Force management practice. The Airman Retraining Program objective of interchanging enlisted personnel between military occupations is accomplished with minimal impact on the individual participants. The change in specialty does not appear to be viewed by retrainees as a stumbling block to the attainment of their military career goals. Supervisors do not believe that retraining interferes with job accomplishment or personnel morale. Overall, the program operates smoothly and promotes the successful transfer of enlistees into second military occupations.

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APPENDIX A: DATA TABLES

Table A-1. **Mean Ratings of Job Performance and Adjustment Assigned by Supervisors to Retrainees and Non-Retrainees**

Item	Retrainee (N=13,060)		Non-Retrainee (N=5,237)	
	Mean	SD	Mean	SD
Job Skill, Ability, and Performance				
Job Skills and Knowledge	3.86	1.04	4.12	.90
Potential for Promotion	3.85	1.11	4.05	.98
Supervisory Skills	3.60	1.15	3.55	1.10
Quality of Work Performance	3.98	1.05	4.14	.93
Amount of Work Performance	3.92	1.07	4.04	.97
Difficulty Level of Work Performance	3.83	1.04	3.98	.95
Adjustment				
Attitude Toward Work	4.01	1.04	4.05	.95
Morale	3.87	1.00	3.91	.91
Attitude Toward Military Life	3.79	1.06	3.72	1.03
Motivation to Learn New Skills	3.95	1.09	4.00	1.01
Motivation to Do Good Job	4.08	1.04	4.15	.96
Relations with Supervisor	4.01	1.03	4.08	.95
Relations with Subordinate	3.93	1.04	4.03	.93
Relations with Co-Workers	4.01	1.01	4.10	.91

Note. Rating Scale Points: 1 = Poor, 2 = Fair, 3 = Average, 4 = Good, 5 = Excellent.
SD = Standard Deviation.

Table A-2. **Average Months in Skill Level for Retrainees and Non-Retrainees**

Skill Level	Retrainees			Non-Retrainees		
	N	Mean	SD	N	Mean	SD
1	934	6.38	2.96	9,153	5.78	3.27
3	4,214	8.97	4.80	68,077	10.32	3.85
5	4,980	20.84	13.93	26,174	47.49	29.01

Table A-3. **Promotion Indices for Retrainees and Non-Retrainees**

Time in Service (Years to Current Grade)	Retrainee				Non-Retrainee			
	N	Promoted[a] Cumulative %	Months in Grade Mean	SD	N	Promoted[a] Cumulative %	Months in Grade Mean	SD
E-5 – Staff Sergeant (to E-6)								
4	679	6.14	89.71	18.42	5,762	9.57	87.96	18.13
5	473	9.63	91.25	20.06	4,140	15.14	89.51	20.43
6	372	12.39	90.05	20.87	3,339	19.63	90.30	21.51
7	305	14.64	91.73	21.95	2,202	22.59	93.58	22.07
E-6 – Technical Sergeant (to E-7)								
10	131	7.65	72.08	20.95	1,535	8.80	68.53	21.56
11	153	11.09	71.35	18.42	1,789	12.97	66.95	18.37
12	186	15.28	64.50	15.23	2,108	17.88	64.64	15.52
13	203	19.85	62.68	13.47	2,379	23.41	61.93	13.95
14	159	23.42	58.60	11.33	1,984	28.03	60.20	12.45
E-7 – Master Sergeant (to E-8)								
13	42	3.82	60.05	14.54	479	3.71	61.08	16.29
14	44	5.67	59.61	16.67	720	6.62	58.56	17.89
15	62	8.27	60.05	21.28	737	9.60	58.27	19.71
16	47	10.25	60.55	20.63	637	12.17	63.09	20.57
17	45	12.14	64.64	19.35	575	14.49	65.34	19.01
E-8 – Senior Master Sergeant (to E-9)								
18	15	6.94	50.80	16.45	235	8.63	51.66	18.68
19	20	10.42	45.65	13.82	228	11.89	54.74	17.66
20	25	14.76	48.32	12.04	359	17.01	51.92	14.43
21	30	19.97	51.50	11.61	328	21.69	49.45	13.82

[a]The cumulative percentage for each time-in-service category is the percentage of airmen promoted in that category plus all airmen in the grade who were promoted in earlier time-in-service categories.

Table A-4. **Percentage of Retrainees and Non-Retrainees Retained in Service at 4-, 8-, 12-, and 16-Year Points**

Year	Retrainee	Non-Retrainee
4	64.1	44.0
8	85.4	85.1
12	92.5	94.0
16	97.2	98.8