Use of Civilian Skills in the Army Air Forces

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THE UTILIZATION OF CIVILIAN SKILLS in the armed forces, whereby a man works at a military job similar to his civilian job, has been recognized by military personnel administrators as sound policy as a general rule, although subject to some exceptions. On the other hand, some civilian critics have been so impressed by the number of exceptions as to doubt that military procedure followed the policy.

No related published study dealing with American personnel can be cited, but there is a related English study, embodied in *Second report and a memorandum by the War Office*, published by the Committee on Skilled Men in the Services (February 1942). In that study one group of 348 men from civilian engineering and allied occupations was followed up in the military service. Of this group, 44 per cent were not serving in related military jobs, nor did they have responsible assignments. The study included Navy, Air Force, and Army personnel.

Recently it has been possible to complete a study of the utilization of civilian background by the U. S. Army Air Forces.[1] Rosters, prepared by each organization of the Army Air Forces Air Service Command located in the United States, showed, among other things, the Main Civilian Occupation and the Military Occupational Specialty for each enlisted man. The function of the Air Service Command, as its name implies, was to give service and not to fight. This service included maintenance and repair of airplanes, building landing fields, maintenance of supply records, looking after motor pools, and running hospitals. Since fighting was not a part of the activity of the Air Service Command, gunners or other purely fighting men were not numbered among its personnel. Such a restriction to nonfighting men has an advantage for the present study in that it eliminates the question of whether the use of a man in a purely military capacity is an acceptable use of civilian skill.

Nine occupations which are performed in the AAF and which are similar to civilian occupations of the same name were chosen for study: (1) cook-baker, (2) truck driver, (3) sheet metal worker, (4) machinist, (5) welder, (6) auto mechanic, (7) clerk-typist, (8) tabulating machine operator, and (9) carpenter. The choice of these occupations was also based on the fact that they were frequently performed in the AAF and that the AAF obtained considerable numbers of men with parallel civilian occupations.

A tabulation was made of the records of 100 white men whose Main Civilian Occupation was that of cook-baker, 100 white men whose Main Civilian Occupation was truck driver, and so on for each of the occupations mentioned. No records were included of men who had had more than three years of military service, since it was thought that only men brought in under Selective Service were comparable (The rosters were compiled in the fall of 1943.) In general, records were not included of men who had less than six months military service, since it was considered that a man's military classification might be more accurate after such a minimum time. (Several exceptions were made to this six-month rule in order to complete 100 cases for a few of the occupations.)

For each man whose record was selected for tabulation, his Military Occupational Specialty was tabulated together with his Army General Classification Test score.[2]

Similar tabulations were made of the records for 100 white men whose Military Occupational Specialty was cook-baker, 100 white men whose Military Occupational Specialty was truck driver, and so on for each of the 9 occupations. Again, the maximum military service was three years and the minimum in most instances was six months, for the reasons stated above.

A civilian auto mechanic might not be assigned in the AAF as an auto mechanic but might be making considerable use of his civilian skill by being assigned, for example, as a Diesel mechanic. Or the civilian auto mechanic might be making some use of his civilian skill in an assignment such as airplane armorer. As a matter of fact, Army Regulations provide such classifications in terms of (1) military assignments most highly recommended for a particular civilian occupation, and (2) military assignments having some relations to a civilian occupation.[3] Consequently, the Military Occupational Specialties of the 100 former civilian auto mechanics were classified as to whether they were (1) closely related, (2) moderately related, or (3) unrelated. Army Regulations were used in this classification, but since the regulations were not complete (they were not intended to be), they were supplemented on the basis of

[1] A grant from the Graduate Research Board, University of Illinois, made it possible to tabulate the data presented herein.

[2] Information about average and range of AGCT scores for military occupations is given in an article by the writer (*Educ. psychol. Measurement*, 1946, 6, 341–349).

[3] Army Regulations No. 615–26, 1942. There are later pertinent regulations, but those cited are most convenient for the present data, since the rosters were based on classifications of Military Occupational Specialties defined at that time.

judgment. This judgment was made by following a policy of classifying an occupation as closely related if there was a possibility of its being so and classifying an occupation as moderately related if there was any possibility of its being at all related. The 9 civilian occupations were similarly classified as to the closeness of relation.

The results of the 1,800 tabulations are shown in Table 1. Tabulating machine operator is the Civilian Occupation which was directly used most often in the AAF.

TABLE 1

RELATION BETWEEN CIVILIAN OCCUPATION AND MILITARY SPECIALTY

Civilian Occupation	Relation of Military Specialty		
	Close	Moderate	None
Tabulating machine operator	90	8	2
Clerk-typist	82	6	12
Machinist	40	34	26
Auto mechanic	29	45	26
Welder	43	24	33
Sheet metal worker	64	2	34
Cook-baker	52	7	41
Truck driver	15	13	72
Carpenter	14	14	72
Military Specialty	**Relation of Civilian Occupation**		
	Close	Moderate	None
Tabulating machine operator	79	14	7
Clerk-typist	44	18	38
Machinist	42	13	45
Auto mechanic	26	30	44
Welder	39	13	48
Sheet metal worker	27	21	52
Cook-baker	17	12	71
Truck driver	29	8	63
Carpenter	43	3	54

Of 100 men who in civilian life had been tabulating machine operators, only 2 were classified in entirely unrelated AAF Military Specialties, whereas 90 were in closely related specialties, leaving 8 in specialties moderately related to their civilian occupation. Clerk-typist has the next highest percentage of cases correctly classified from the standpoint of utilization of civilian skill. It may be of some importance that these two occupations standing highest in use of civilian skills are in the clerical-administrative group rather than in the maintenance group as are the majority of other Civilian Occupations studied. The fact that tabulating machine operators and clerk-typists were best classified cannot be ascribed to their skill level, since the time necessary for teaching those skills is no longer than that for machinists and sheet metal workers.

With samples of only 100 for each occupation, all differences are by no means thought to be significant. Ample military data is probably available for additional study of this problem if additional cases are desired.

The question of supply and demand is a natural one for a suggested explanation of the unevenness of skill utilization among Civilian Occupations. In other words, perhaps machinists and sheet metal workers were less often classified in the same jobs than were tabulating machine operators and clerk-typists because the supply of available specialists relative to demand was greater with respect to the two former occupations. Complete AAF data are not available, but the lower half of Table 1 suggests that supply and demand do not furnish the complete answer. If the fact that only 40 out of 100 civilian machinists were classified into closely related Military Specialties were due to supply and demand, it might be that the AAF possessed so many machinists that a large percentage had to be assigned on other jobs. The data, in so far as they go, clearly negate such an hypothesis, since it is found that only 42 out of 100 AAF machinists came from closely related civilian occupations. A similar comparison for the other occupations shows no basis for supply and demand as a major explanation of misclassification.

One question of method that may appear to be important to the results may be seized upon by anyone familiar with the details of the Army classification system. This is whether it would not have been more meaningful to use the actual AAF assignment rather than classification. There are reasons for preferring actual assignment and reasons for preferring classification in such a study. Actually, for the sample studied there was an agreement between classification and assignment which, on the basis of casual inspection, seemed to approximate 95 per cent. An advantage of using classification rather than assignment is that a man might have been doing a temporary job or, because of equipment shortage, might not have been performing the job for which he was classified.

One point frequently raised with respect to a direct comparison between civilian and military jobs is that a person with a supervisory job might be doing something of greater value to the service, even though his supervisory job was not closely related to his civilian job. This point is fairly well covered in the present study, since supervisory jobs that utilize a person's civilian skills in any way have been classified as either closely related or moderately related, depending on the nature of the case. For example, a civilian auto mechanic classified as a motor transportation NCO was tabulated as a case of "close" relation, and a civilian auto mechanic classified as a supply NCO, as a case of "moderate" relation. It is true that there are examples of noncommissioned officers whose classification bore no relationship to their civilian skills. Such cases, of course, would be found under the column headed "None," but they were extremely rare.

The top half of Table 1 shows that the median for the column headed "None" is 33. In other words, for these 9 occupations the AAF utilized the civilian skill of approximately two men in three—by a classification either

closely related or moderately related to his civilian job. In the other one case out of three there was no relation between Civilian Occupation and Military Specialty.

The range of nonuse of civilian backgrounds is striking. As shown in Table 1, it varies from 2 to 72 per cent.

Practically everyone who has worked with Army classification must be familiar with the fact that the rigidity of school quotas was one big cause of failure to use civilian skills thoroughly. One Reception Center or Replacement Training Center would be forced to fill within a short time its quota of men to be sent for training as military specialists. The housing facilities of the centers were not sufficiently great to hold men for a considerable period of time waiting for quotas more related to their civilian backgrounds. Undoubtedly such school quotas constituted an explanation of many of the failures to use civilian backgrounds that are reflected in Table 1. As a matter of fact, the rosters that were used show which school was attended in the Army. A preliminary tabulation of such data has been made.

Civilian tabulating machine operators were employed by the AAF in the highest percentage of cases among the occupations studied. Next in percentage of utilization are civilian clerk-typists. The former worked under administrative officers who were closely connected with those supervising the AAF Classification and Assignment Program. For clerk-typists, though they were assigned in almost every AAF organization, the situation was frequently similar. Statistics such as those in Table 1 cannot prove why one civilian skill would be neglected in only 2 per cent of the cases while another skill would be neglected in 72 per cent of the cases. These data do indicate that where, for some reason, sufficient pressures exist, civilian skills can be utilized almost perfectly.

The Cooperative Committee on the Teaching of Science and Mathematics:

Its Organization and Program

THE COOPERATIVE COMMITTEE ON Science Teaching was created in 1941 by representatives of several scientific societies to work on educational problems the solution of which can be attained better by cooperative action than by any single scientific group working alone.[1] Subsequently the Committee published a "Preliminary Report on the Preparation of High School Science Teachers," which has been used by a number of university and college faculty committees. Another problem attacked by the Committee—that of using high school science and mathematics to meet manpower needs during the war—resulted in a report on "High School Science and Mathematics in Relation to the Manpower Problem," which was published in 1943 and distributed to more than 12,000 individuals.

A further function of the Cooperative Committee has been to serve as a forum in which representatives of the scientific societies have been able to state the views of their own groups and to learn those of other groups on science teaching at the secondary and elementary levels.

The Committee has an advisory relation to its parent organizations and reports to them regularly through their representatives.

The Committee, as organized in 1941, consisted of the following representatives of scientific societies:

American Association of Physics Teachers: K. Larkin-Horovitz, Purdue University, and Glen W. Warner, Wilson Junior College, Chicago.

Union of Biological Societies: Oscar Riddle, Department of Genetics, Carnegie Institution, and Walter F. Loehwing, State University of Iowa.

Mathematical Association of America: A. A. Bennett, Brown University, and Raleigh Schorling, University of Michigan.

American Chemical Society: B. S. Hopkins, University of Illinois, and Martin V. McGill, Lorain High School, Lorain, Ohio.

National Association for Research in Science Teaching: G. P. Cahoon, Ohio State University, and Robert J. Havighurst, University of Chicago.

The initial financial needs of this Committee were met by grants totaling $3,000 from the Carnegie Foundation for the Advancement of Teaching.

The original Committee served for three years without change of personnel and was then reorganized as a committee of the AAAS.

Invitations to associations to be represented on the Committee originate from the Executive Committee of the AAAS, each organization then submitting its choice to the Committee for confirmation and final appointment. In making selections, particular attention has been given to adequate representation of the teaching profession of secondary schools, colleges, and universities. The Committee selects its own chairman and secretary.

[1] The Committee is indebted to President Emeritus E. C. Elliott, of Purdue University, who supported its early activities in every way.