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AG-6-FRS Report 549

STUDIES IN THE DEVELOPMENT OF GENERAL TECHNICAL TEST TC-2a

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This folder includes reports on the development of and various preliminary forms and instructions of the General Technical Test, TC-2a 1943, in chronological order. There follows below a brief summary statement of each of the reports.

TAB A Plans and Progress in Screening Test Preparation

The plans take up the procedures of Preparation, Tryout, Item Validation, and Standardization. Under the heading of progress, mention is made of the literature needed, the system of processing items, and reference to current correspondence as to the availability of supplies.

TAB B Elementary Reading Comprehension Test (Armament) ETR-1a

This form is keyed, and has attached to it a copy of Instructions for Form ETR-1a and ETR-1b. Form ETR-1a consists of 51 multiple choice items on paragraphs and a test item check sheet.

TAB C Progress in Preparation of Screening Test August 19, 1942

The report considers the steps being taken to use a three-section test battery. Test items for the first section on Elementary Technical Material are being chosen on the basis of how they discriminated between soldiers who have followed a mechanical occupation in civil life and those who have had no such occupation. It is believed that the resultant test section will measure practical and technical knowledge for all men with technical background and not alone men particularly suited for the Air Forces. The second section on Technical Reading Information (Experiment 3), and the third section on Technical Vocabulary Tests (Experiment 5) have demonstrated validity in predicting success in an Airplane Mechanics Course. Another form will be developed based on "neutral" technical material in order to get it to predict progress in any technical subject. The following three keyed forms follow the above report of progress: The Technical Reading Comprehension Test with Instructions for Administration, Experiment 3 Revised; The Technical Reading Comprehension Test (Airplane Mechanics), Experiment 4, and The Technical Vocabulary Test (Airplane Mechanics), Experiment 5 (1).

TAB D The General Technical Test GT-1 August 22, 1942

This report consists of four sections. The first section states that the test was designed to select men suitable for training in Army technical schools, and briefly indicates how the men were selected. The second section considers the makeup of the test, and the third takes up the question of proving the items before their inclusion in the test and indicates the need for further revision of the test questions. The fourth section on further plans points out the necessity of making several forms of the test.

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TAB E Preliminary Recommendation for Critical Score on Test GT-1

This report presents sample copies and complete reports on the construction and statistical appraisal of this test designed for use in reception centers to determine the qualifications for recruits for assignment to the Air Forces. It is believed that the test will screen out in large proportion men who will succeed in Air Forces technical training courses. In view of the stated recommendations, it will be necessary to test 1,298 men to obtain 1,000 men qualified for Air Forces assignment. Of these 1,000 men, 441 will qualify for training in the Air Forces technical schools.

GT-1 Study (Inclosure #1), under the dates of Sep. 2, 4, 5, 1942, presents tables on the reliability correlation of GT-1 (odd vs even), and various intercorrelations. Next follows a tabulation of the means and standard deviations of three groups on GT-1, GCT, MA-1 and MA-2 & 3. The last tabulation presents the critical ratio of the difference between means of these groups.

TAB F Determination of Occupational Criterion Groups for ET-1 Item Validation

This tabulation contains a listing of the best or second best occupations in Skilled or Semi-skilled Code for Group X, and a brief listing of Group Y with no X occupation.

TAB G Proportion of Men with Given GT-1 Standard Score Who Fall Below certain GCT and MA Standard Scores are presented in the first and third tables, and a Standard Score Scattergram Tests GT-1 and All Forms of GCT. These two tables and the previous listing of occupational criterion groups are duplicated in two later reports.

TAB H Best GT-1 Critical Score Requirement for Assignment to Army Air Forces, September 4, 1942.

This report explains how the critical score of 105 standard score points was set for GT-1 by a comparable study of the MA tests. A letter, September 12, 1942 to Roger M. Bellows, 1st Lt, AGD, Classification Division AAFTC, Knollwood Field, N. C., from Wilbert C. Clinton, Captain, Air Corps, Secretary Hqs. Technical School, AAFTC, Buckley Field, Denver, Col. This letter mentions a mix-up in the schedule of special classes with reference to the score of the men on GCT. Work on Form WS-5, Armament, is reported on one of the special classes.

TAB I A letter, October 2, 1942, to Capt. Wilbert C. Clinton from Roger M. Bellows, 1st Lt, AGD. Acknowledgement is made of the receipt of GT-1 481 separate answer sheets and a roster of data. It is stated that analysis of the data will be started immediately. Additional related information is requested.

TAB J Technical Vocabulary Test, September 18, 1942

This account shows that this test has been constructed to be used in conjunction with some mechanical information test. In order to plan this test.

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two things were attempted: (1) to produce a test which would have validity in predicting success in the technical course of the Army Air Forces, and (2) to produce a vocabulary test in which the items were selected in as objective a way as possible. The most feasible procedure for achieving these two aims is outlined under the three following sections: selection of 110 words according to frequency of occurrence, selection of 40 items, and mechanical features.

TAB K Report on Trip to Washington, September 13-17, inclusive, September 20, 1942

This report is to the Chief of Staff, AAFTTC, Knollwood Field, N. C. from James W. Hill, Lt. Col., AGD, Ass't Adjutant General. It is concerned principally with a conference between representatives of the AFDOP, of the AAFTTC, and of the AGD before the Adjutant General, Classification and Assignment Division, AGO. Lt. Col. Hill and Mr. Richard Baubion of the AAFTTC made a full report on the results obtained in developing a screening test for use in the Reception Centers. In a discussion, the following five points were established:

- (1) The MAI-A will be withdrawn from use. MA-2 and MA-3 select the type of technical student desired by the AAR; if given under proper conditions in reception centers.
- (2) It is planned to use the screening test developed by the Classification Division, AAFTTC as an additional mechanical aptitude test at reception centers.
- (3) It was stated by Col. Evans that every effort was being made to improve the operation in reception centers to the point where the operation would be above criticism from the Air Forces and the Ground Forces. He further stated that every effort is being made to put into effect a payment of pre-induction training aimed at men between the ages of 18 and 21.
- (4) Every effort is being made to place in operation a plan to be controlled by the Manpower Board that will permit the Army, Navy, and Marines to actually make selection of men of the required qualifications prior to their induction into the services. The implications of this with reference to the elimination from induction of key personnel from industry and of individuals of low mentality is noted.
- (5) It was pointed out that after October 30, the Air Forces would not receive men who have a basic score of 100 on both the GCT and the MA. Instead MA-2, MA-3, and the screening test developed by the Classification Division would be used, and that as far as possible, 75 percent of all men received would have a Mechanical Aptitude Test Score of 100 or better. Several conferences on other matters are mentioned.

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TAB L The General Technical Test GT-1, September 21, 1942 RMB/T5

This account is divided into six sections, which take up the purpose of the test, the content and format, the tryout on 1046 men at Atlantic City Basic Training Center, the reliability, intercorrelations with other tests, and the validity on the basis of occupational background of three groups of the Atlantic City sample. The General Technical Test appears to discriminate men who have technical experience from those without such experience considerably better than does either AGCT or MA-1. It does not appear to differentiate these two groups more effectively than does AMA-2 or 3.

TAB M The General Technical Test, September 21, 1942

This account in outline form is supplemented by six tables. The account, divided into three sections, takes up first the origin and purpose of the test, its construction and tryout. Table I is a conversion table of raw score into standard score. The next two tables show how the passing point was determined. Table 2 presents the data on the proportion of men with given GT-1 standard score who fall below 85, 90, 95, 100 GCT standard score. Table 3 presents the data on the proportion of men with a given GT-1 standard score who fall below 85, 90, 95, 100 MA standard score. Table 4 presents the distribution of the number of men falling in each GCT and MA grade who have GC-1 s.s. 105 or above. The recommendation has been made that a standard score of 105 on GT-1 be established as a minimum score for assignment to the Air Forces. The estimation of the validity of the test is shown in the next two tables. Table 5 presents the correlation of test GT-1 with other tests. Table 6 shows the extent to which group tests distinguish men with technical occupations. There is appended to the table a tabulation of the differences and critical ratios between these group tests, namely, GCT, GT-1, MA-1 and MA-2 & 3 and the three occupational groups.

TAB N Contents (in order of occurrence)

This is the most extensive account of the work done on GT-1 in the folder, and on its fact sheet, it has a list of its contents. Some of the subject matter has been previously reported on in chronological order earlier in this summary.

TAB O General Technical Test, Series GT-1, AAFTC

This test is divided into two parts. Part I on Technical Reading consists of 27 multiple choice items, and Part II on Technical Information and Vocabulary consists of 123 items. Two of the above items are sample questions and 148 are test items.

TAB P General Technical Test, Series TC-2a

GT-1 has been renamed TC-2a in the latest form of the test. The directions and format have also been changed, but the items appear to be the same.