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ABSTRACT

The United States Training and Employment Service General Aptitude Test Battery (GATB), first published in 1947, has been included in a continuing program of research to validate the tests against success in many different occupations. The GATB consists of 12 tests which measure nine aptitudes: General Learning Ability; Verbal Aptitude; Numerical Aptitude; Spatial Aptitude; Form Perception; Clerical Perception; Motor Coordination; Finger Dexterity; and Manual Dexterity. The aptitude scores are standard scores with 100 as the average for the general working population, and a standard deviation of 20. Occupational norms are established in terms of minimum qualifying scores for each of the significant aptitude measures which, when combined, predict job performance. Cutting scores are set only for those aptitudes which aid in predicting the performance of the job duties of the experimental sample. The GATB norms described are appropriate only for jobs with content similar to that shown in the job description presented in this report. A description of the validation sample and a personnel evaluation form are also included. (AG)

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Development of USES Aptitude Test Battery

for

Cottage Parent

(medical ser.) 355.878

U.S. DEPARTMENT OF LABOR
W. Willard Wirtz, Secretary
MANPOWER ADMINISTRATION
BUREAU OF EMPLOYMENT SECURITY
Washington, D.C. 20210

Technical Report on Development of USES Aptitude Test Battery

For

Cottage Parent (medical service) 355.878

S-388

U. S. Employment Service
in Cooperation with
New Jersey State Employment Service

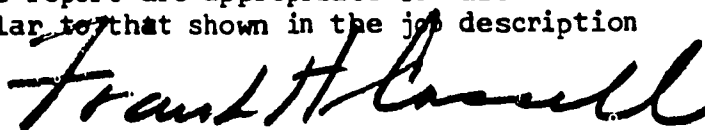
September 1966

FOREWORD

The United States Employment Service General Aptitude Test Battery (GATB) was first published in 1947. Since that time the GATB has been included in a continuing program of research to validate the tests against success in many different occupations. Because of its extensive research base the GATB has come to be recognized as the best validated multiple aptitude test battery in existence for use in vocational guidance.

The GATB consists of 12 tests which measure 9 aptitudes: General Learning Ability, Verbal Aptitude, Numerical Aptitude, Spatial Aptitude, Form Perception, Clerical Perception, Motor Coordination, Finger Dexterity, and Manual Dexterity. The aptitude scores are standard scores with 100 as the average for the general working population, with a standard deviation of 20.

Occupational norms are established in terms of minimum qualifying scores for each of the significant aptitude measures which, in combination, predict job performance. For any given occupation, cutting scores are set only for those aptitudes which contribute to the prediction of performance of the job duties of the experimental sample. It is important to recognize that another job might have the same job title but the job content might not be similar. The GATB norms described in this report are appropriate for use only for jobs with content similar to that shown in the job description included in this report.



Frank H. Cassell, Director
U. S. Employment Service

DEVELOPMENT OF USES APTITUDE TEST BATTERY

For

Cottage Parent (medical service) 355.878

S-388

This report describes research undertaken for the purpose of developing General Aptitude Test Battery (GATB) norms for the occupation of Cottage Parent (medical service) 355.878. The following norms were established:

GATB Aptitude	Minimum Acceptable GATB, B-1002 Scores
K - Motor Coordination	95
M - Manual Dexterity	85

RESEARCH SUMMARY

Sample:

56 (5 male and 51 female) workers employed at Woodbridge State School for the Mentally Retarded, Woodbridge, New Jersey.

Criterion:

Supervisory ratings

Design:

Longitudinal (criterion data were collected approximately one year after testing.)

Minimum aptitude requirements were determined on the basis of a job analysis and statistical analysis of aptitude mean scores, standard deviations, aptitude-criterion and selective efficiencies.

Predictive Validity:

Phi Coefficient = .29 ($P/2 < .025$)

Effectiveness of Norms:

Only 64% of the non-test-selected workers used for this study were good workers; if the workers had been test-selected with the S-388 norms, 76% would have been good workers. 36% of the non-test-selected workers used for this study were poor workers; if the workers had been test selected with the S-388 norms, only 24% would have been poor workers. The effectiveness of the norms is shown graphically in Table 1:

TABLE 1

Effectiveness of Norms

	Without Tests	With Tests
Good Workers	64%	76%
Poor Workers	36%	24%

SAMPLE DESCRIPTION

Size:

N = 56

Occupational Status:

Applicants

Work Setting:

Applicants were subsequently employed by Woodbridge State School, Woodbridge, New Jersey.

Employer Selection Requirements:

Education: Minimum of eighth grade

Previous Experience: None

Tests: None

Principal Activities:

The job duties for each worker are comparable to those shown in the job descriptions in the Appendix.

TABLE 2

Means, Standard Deviations (SD), Ranges, and Pearson Product-Moment Correlations with the Criterion (r) for Age and Education

	Mean	SD	Range	r
Age (years) N=55	37.6	11.1	18-58	.066
Education (years) N=54	10.2	2.0	2-14	-.051

EXPERIMENTAL TEST BATTERY

All 12 tests of the GATB, B-1002B were administered between 1964 and 1965 prior to collection of criterion data. The Kuder Preference Record, Vocations Form CH was administered at the same time as the GATB.

CRITERION

The criterion data consisted of supervisory ratings of job performance and attitude made approximately one year after the test data was collected. The ratings were made by the shift supervisor in each individual cottage at the school.

Rating Scale

Adaptation of USES Form SP-21, "Descriptive Rating Scale." This scale (see Appendix) consists of seventeen items covering different aspects of job performance. Each item has five alternatives corresponding to different degrees of job proficiency.

Reliability

A reliability coefficient of .72 was obtained between initial ratings and reratings obtained at least three months later for the 46 individuals for whom two ratings were obtained. An average of the first and second ratings was used for these individuals.

Criterion Dichotomy

The criterion distribution was dichotomized into low and high groups by placing 36 % of the sample in the low group. Workers in the high criterion group were designated as "good workers" and those in the low group as "poor workers." The criterion critical score is 60.

APTITUDES CONSIDERED FOR INCLUSION IN THE NORMS

Aptitudes were selected for tryout in the norms on the basis of a qualitative analysis of the job duties involved and a statistical analysis of test and criterion data. Aptitude K, which does not have a high correla-

tion with the criterion was considered for inclusion in the norms because the qualitative analysis indicated that K was important for the job duties and the sample had a relatively high mean aptitude score on K. With employed workers, a relatively high mean score may indicate some sample preselection. Tables 3, 4, and 5 show the results of the qualitative and statistical analyses.

TABLE 3

Qualitative Analysis

(Based on the job analysis, the aptitudes indicated appear to be important to the work performed)

Aptitude	Rationale
G - General Learning Ability	Worker must have ability to understand oral and written instruction; be able to grasp details and make judgements with regard to children.
K - Motor Coordination	Must be able to coordinate eyes and hands with accuracy while feeding, dressing, and attending children because children may move or do things in an unusual or unexpected manner. Important in the physical prevention of accidents.
M - Manual Dexterity	Worker must be able to move hands skillfully while feeding, giving liquids, bathing, changing clothing and general care of child.

TABLE 4

Means, Standard Deviations (SD), Ranges and Pearson Product-Moment Correlations with the Criterion (r) for the Aptitudes of the GATB.

Aptitude	Mean	SD	Range	r
G - General Learning Ability	78.2	20.1	40-131	.333*
V - Verbal Aptitude	87.9	15.3	61-131	.224
N - Numerical Aptitude	75.6	22.0	40-128	.290*
S - Spatial Aptitude	83.6	16.9	51-127	.361**
P - Form Perception	89.2	23.8	29-161	.201
Q - Clerical Perception	99.4	17.3	65-152	.239

K - Motor Coordination	105.7	17.6	64-140	.244
F - Finger Dexterity	91.9	19.0	38-141	-.021
M - Manual Dexterity	99.0	19.0	62-143	.308*

*Significant at the .05 level
 **Significant at the .01 level

TABLE 5

Summary of Qualitative and Quantitative Data

Type of Evidence	Aptitudes									
	G	V	N	S	P	Q	K	F	M	
Job Analysis Data										
Important	X						X		X	
Irrelevant										
Relatively High Mean						X	X		X	
Relatively Low Standard Dev.									X	
Significant Correlation with Criterion	X		X	X					X	
Aptitudes to be Considered for Trial Norms	G		N	S			K		M	

DERIVATION AND VALIDITY OF NORMS

Final norms were derived on the basis of a comparison of the degree to which trial norms consisting of various combinations of aptitudes G, N, S, K, and M at trial cutting scores were able to differentiate between the 64% of the sample considered good workers and 36% of the sample considered poor workers. Trial cutting scores at five-point intervals approximately one standard deviation below the mean are tried because this will eliminate about one-third of the sample with three aptitude norms. For two-aptitude trial norms, minimum cutting scores of slightly higher than one standard deviation below the mean will eliminate about one-third of the sample; for four-aptitude trial norms, cutting scores of slightly lower than one standard deviation below the mean will eliminate about one-third of the sample. The Phi Coefficient was used as a basis for comparing trial norms. Norms of K-95 and M-85 provided the highest degree of differentiation. The validity of these norms is shown in Table 6 and is indicated by a Phi Coefficient of .29 (statistically significant at the .025 level)

TABLE 6

Predictive Validity of Test Norms K-95, and M-85

	Nonqualifying Test Scores	Qualifying Test Scores	Total
Good Workers	11	25	36
Poor Workers	12	8	20
Total	23	33	56

Phi Coefficient = .29

Chi Square (X^2) = 4.6Significance Level = $P/2 < .025$

DETERMINATION OF OCCUPATIONAL APTITUDE PATTERN

The data for this study did not meet the requirements for incorporating the occupation studied into any of the OAP's included in Section II of the Manual for the General Aptitude Test Battery. The data for this sample will be considered for future groupings of occupations in the development of new occupational aptitude patterns.

11/56

State of New Jersey
Department of Labor and Industry
DIVISION OF EMPLOYMENT SECURITY
NEW JERSEY STATE EMPLOYMENT SERVICE
Affiliated with United States Employment Service

A-P-P-E-N-D-I-X

DESCRIPTIVE RATING SCALE
(For Aptitude Test Development Studies)

Score _____

RATING SCALE FOR _____
D. O. T. Title and Code

Directions: Please read the sheet "Suggestions to Raters" and then fill in the items listed below. In making your ratings, only one box should be checked for each question.

Name of worker (print) _____
(Last) (First)

Sex: Male _____ Female _____

Company Job Title: _____

How often do you see this worker in a work situation?

- See him at work all the time.
- See him at work several times a day.
- See him at work several times a week.
- Seldom see him in work situation.

How long have you worked with him?

- Under one month.
- One to two months.
- Three to five months.
- Six months or more.

A. How much work can he get done? (Worker's ability to make efficient use of his time.

- 1. Capable of very low work output.
- 2. Capable of low output.
- 3. Capable of fair work output.
- 4. Capable of high work output.
- 5. Capable of very high work output.

B. How good is the quality of his work? (Worker's ability to do high-grade work which meets quality standards.)

- 1. Very poor. Does work of unsatisfactory grade. Performance is inferior and almost never meets minimum quality standards.
- 2. Not too bad, but the grade of his work could stand improvement. Performance is usually acceptable but somewhat inferior in quality.
- 3. Fair. The grade of his work is mediocre. Performance is acceptable but usually not superior in quality.
- 4. Good, but the grade of his work is not outstanding. Performance is usually superior in quality.
- 5. Very good. Does work of outstanding grade. Performance is almost always of the highest quality.

C. How able is he to exercise good judgment?

- 1. Makes very many mistakes. Work needs constant checking.
- 2. Makes frequent mistakes. Work needs more checking than is desirable.
- 3. Makes mistakes occasionally. Work needs only normal checking.
- 4. Makes few mistakes. Work seldom needs checking.
- 5. Rarely makes a mistake. Work almost never needs checking.

- D. How much does he know about his job? (Worker's understanding of the principles, equipment, materials and methods that have to do directly or indirectly with his work.)
- 1. Has very limited knowledge. Does not know enough to do his job adequately.
 - 2. Has little knowledge. Knows enough to "get by."
 - 3. Has moderate amount of knowledge. Knows enough to do fair work.
 - 4. Has broad knowledge. Knows enough to do good work.
 - 5. Has complete knowledge. Knows his job thoroughly.
- E. How much aptitude or facility does he have for this kind of work? (Worker's adeptness or knack for performing his job easily and well.)
- 1. Very low aptitude. Has great difficulty doing his job. Not at all suited to this kind of work.
 - 2. Low aptitude. Usually has some difficulty doing his job. Not too well suited to this kind of work.
 - 3. Moderate aptitude. Does his job without too much difficulty. Fairly well suited to this kind of work.
 - 4. High aptitude. Usually does his job without difficulty. Well suited to this kind of work.
 - 5. Very high aptitude. Does his job with great ease. Unusually well suited for this kind of work.
- F. How large a variety of job duties can he perform efficiently? (Worker's ability to handle several different operations in his work.)
- 1. A very limited variety. Cannot perform different operations adequately.
 - 2. A small variety. Can perform few different operations efficiently.
 - 3. A moderate variety. Can perform some different operations with reasonable efficiency.
 - 4. A large variety. Can perform several different operations efficiently.
 - 5. An unusually large variety. Can do very many different operations efficiently.

- G. How resourceful is he when something different comes up or something out of the ordinary occurs? (Worker's ability to apply what he already knows to a new situation.)
- 1. Very unresourceful. Almost never is able to figure out what to do. Needs help on even minor problems.
 - 2. Unresourceful. Often has difficulty handling new situations. Needs help on all but simple problems.
 - 3. Fairly resourceful. Sometimes knows what to do, sometimes doesn't. Can deal with problems that are not too complex.
 - 4. Resourceful. Usually able to handle new situations. Needs help on only complex problems.
 - 5. Very resourceful. Practically always figures out what to do himself. Rarely needs help, even on complex problems.
- H. How often does he make practical suggestions for doing things in better ways? (Worker's ability to improve work methods.)
- 1. Never. Sticks strictly with the routine. Contributes nothing in the way of practical suggestions.
 - 2. Very seldom. Slow to see new ways to improve methods. Contributes few practical suggestions.
 - 3. Once in a while. Neither quick nor slow to see new ways to improve methods. Contributes some practical suggestions.
 - 4. Frequently. Quick to see new ways to improve methods. Contributes more than his share of practical suggestions.
 - 5. Very often. Extremely alert to see new ways to improve methods. Contributes an unusually large number of practical suggestions.
- I. Considering all the factors already rated, and only these factors, how satisfactory is his work? (Worker's "all-around" ability to do his job.)
- 1. Definitely unsatisfactory. Would be better off without him. Performance usually not acceptable.
 - 2. Not completely satisfactory. Of limited value to the organization. Performance somewhat inferior.
 - 3. Satisfactory. A fairly proficient worker. Performance generally acceptable.
 - 4. Good. A valuable worker. Performance usually superior.
 - 5. Outstanding. An unusually competent worker. Performance almost always top notch.

J. Inter-Personal Relationships (relationship between trainee and other personnel and other trainees).

- 1. Never maintains compatible relationship with other personnel and trainees.
- 2. Rarely maintains compatible relationship with other personnel and trainees.
- 3. Sometimes maintains compatible relationship with other personnel and trainees.
- 4. Usually maintains compatible relationship with other personnel and trainees.
- 5. Always maintains compatible relationship with other personnel and trainees despite "differences".

K. Adult-Child Relationship

- 1. Never uses well-balanced disciplinary methods.
- 2. Rarely uses well-balanced disciplinary methods.
- 3. Sometimes uses well-balanced disciplinary methods.
- 4. Often uses well-balanced disciplinary methods.
- 5. Always uses well-balanced disciplinary methods.

L. Sense of Responsibility

- 1. Irregular attendance and never punctual.
- 2. Frequent absences and tardiness.
- 3. Sometimes punctual and some irregularity of attendance.
- 4. Usually punctual and usually attends regularly.
- 5. Always punctual and attends regularly.

M. Appearance

- 1. Never neatly or properly dressed.
- 2. Rarely neatly or properly dressed.
- 3. Sometimes, but not often, neatly or properly dressed.
- 4. Often, but not always, neatly or properly dressed.
- 5. Always neatly and properly dressed.

N. General Attitude Toward Work

- 1. Generally bored and unenthusied.
- 2. Little expression of interest and enthusiasm.
- 3. Does what is required with occasional expression of interest.
- 4. Usually interested and enthusiastic.
- 5. Always interested and enthusiastic.

O. Degree of Acceptance of Children With Bizarre Behavior

- 1. Usually reacts with overt disgust toward some children.
- 2. Expresses some negative reaction to some children.
- 3. Tends to avoid some children.
- 4. Often accepts most children.
- 5. Always accepts all children.

P. General Understanding of Behavior

- 1. Uncritical acceptance of all kinds of behavior.
- 2. Uncritical acceptance of most behavior.
- 3. Some attempt to understand behavior.
- 4. Some understanding of behavior as meaningful.
- 5. Genuine understanding of all behavior as meaningful.

Q. Adaptiveness to needs of Individual Children

- 1. Seldom responds appropriately to needs of individual children.
- 2. Occasionally responds appropriately to needs of individual children.
- 3. Usually responds appropriately to needs of individual children.
- 4. Often responds appropriately to needs of individual children.
- 5. Always responds appropriately to needs of individual children.

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FACT SHEET

Job Title: Cottage Parent (medical service) 355.878

Job Summary: Cares for mentally retarded children, who may also be physically handicapped and attends to their surroundings so that the children are physically comfortable: Feeds, washes, dresses, changes, entertains children and trains in everyday activities such as personal care. Cleans and maintains the cottages in which they reside.

Work Performed:

Feeds Children: Dishes out pre-cooked foods and places on table in front of children. Spoon-feeds non-ambulatory and multiple handicapped children. Gives liquids from cup or bottle at prescribed times to non-ambulatory children.

Bathes and Washes Children: Bathes child, according to schedule, in long, raised tub or supervises in showers. Bathes child when body is soiled by excretia. Cleans hands, face and teeth after meals and as necessary during the day.

Examines Children for Unusual Physical Problems: Examines child for bruises, bumps, cuts or physical symptoms of disease, such as rash, sores, fever, when dressing or undressing. Lists child on clinic list for checking by nurse or doctor if the above are present. Reports any change in eating, sleeping or defecating habits that may be indicative of need for medical attention. Conducts child to clinic.

Dresses and Changes Children: Dresses non-ambulatory and assists ambulatory children to dress themselves if able. Changes diapers or clothing. Assists or undresses children in the evening and prepares them for bed by putting on clean diapers, pants or pajamas. Puts on or assists with shoes and outer clothing when children go out. Ties, buttons, buckles and snaps as necessary. Encourages those who are able to learn to do the tasks themselves. Puts on prescribed orthopedic braces or correctional shoes.

Attends Children at Night: Takes children to the toilet when necessary; changes pajamas and bedding if soiled. Checks children at periodic intervals to insure their safety and comfort.

Carries Non-Ambulatory Children: Carries, with the assistance of another attendant, a stretcher containing two or more children from sleeping area to recreation area and back, or to bathroom for bathing or toileting.

Cleans Cottage: Operates an electric floor washing machine to clean dining area after all meals, by filling machine with specified amounts of detergent and water and pushing it over the floors. Cleans sleeping and recreation area floors two or three times a week, if needed. Makes beds, either alone or with another attendant, by stripping beds of soiled sheets, washing mattress down, and putting on clean sheet and blanket. Washes metal parts of beds at specified intervals of not more than one week. Washes windows, toilets, urinals, showers, tubs and floors, using special detergent and laundry brushes and mops.

Checks Laundry: Counts and folds incoming laundry, such as diapers, polo shirts, dungarees, socks and puts away in closets. Counts and rinses dirty and soiled laundry and stores in receptacles for the laundry trucks to pick up.

Attends Children During Recreation Periods: Leads in singing, plays games with children. Directs arts and crafts if child is able. Watches to prevent accidents and entertains the children. Takes children on outings. Turns children, in non-ambulatory cottages, and watches them in recreation areas to prevent accidents, such as rolling off mats or tipping from chairs. Assists children who are in crawling stages with walking or moving about in "Walkers". Exercises non-ambulatory children by manipulating arms or legs.

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