A STUDY OF THE VALIDITY OF

THE ARMY GROUP EXAMINATION ALPHA

SCHRAMMEL-BRANNAN REVISION

A THESIS

SUBMITTED TO THE DEPARTMENT OF

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TEACHERS COLLEGE OF EMPORIA IN PARTIAL FULFILLMENT OF

THE REQUIREMENTS FOR THE DEGREE OF

MASTER OF SCIENCE

BY

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CHAPTER I

INTRODUCTION

Historical Summary

When the United States entered the World War, there was a felt need for some instrument of classification which would group the recruits from the various cantonments more efficiently and with a greater degree of accuracy than officers' judgements. Such a scale was devised by a commission of psychologists. This scale is known as the Army Group Examination Alpha. The complete report covering their work in standardization, construction, use of the scale, and the results obtained may be found in the National Academy of Sciences, Memoirs.[1]

The norms of the original scale were not suited for school use. James C. De Voss, former director of the Bureau of Educational Measurements, Kansas State Teachers College of Emporia, received permission to adapt the scale for use in the

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[1] Robert M. Yerkes, editor, Psychological Examining in the United States Army (National Academy of Sciences, Memoirs, Vol XV, Washington: Government Printing Office, 1921), Part I, Chap. V.

[2] James C. De Voss, Manual of Instructions, Army Alpha Intelligence Tests (Emporia: Kansas State Teachers College, 1923), 28 pp.

schools. Since that time this scale has been published and distributed by the Bureau of Educational Measurements.

A revised manual of instructions was published in 1927 by Wood and Schrammel and norms computed from the scores of 13,671 students.[3]

Nature of Revised Test

The revision of the original scale was undertaken in 1935. Practically all items were taken from the original five forms.

The various items for all the forms were statistically equated and matched. The revised scale contains two hundred twenty items as compared to two hundred twelve of the original test, and in many respects is quite similar to it. Complete information relative to the exact procedure and the nature of the revision can be found in the unpublished thesis of Christine Brannan in the library of the Kansas State Teachers College of Emporia.[4] Dr. H. E. Schrammel in the *Transactions of the Kansas Academy of Science*, also

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[3] H. E. Schrammel and E. R. Wood, *Army Alpha Intelligence Examination Manual* (revised edition; Emporia: Bureau of Educational Measurements, Kansas State Teachers College, 1931), 17 pp.

[4] Christine Viola Brannan, *A Study of the Difficulty of Items in the Army Alpha Intelligence Test and a Suggested Revision of the Test* (unpublished Master's thesis, Kansas State Teachers College, Emporia, Kansas, 1935), 93 pp.

has an account of the proposed revision of the scale.[5] This

test is known as the Army Group Examination Alpha, Schrammel-

Brannan Revision and is published by the Bureau of Educational

Measurements, Emporia.

Objectives of the Study

An important characteristic of any test or scale is

its validity. In other words, to what extent does it mea-

sure what it purports to measure? It is the purpose of this

study to determine to what degree the Schrammel-Brannan

Revision of the Army Alpha Intelligence Examination compares

with other tests and scales in the measurement of the concept

of intelligence. The writer is interested in comparing the

scale with accepted group and individual tests to ascertain

its relative value as an intelligence examination. The

Revised Army Alpha has many characteristics, which make it

outstanding in the testing field, so it is highly desirable

to know how valid a test it is.

Establishing Criteria

The problem of determining the criteria for the basis

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[5] H. E. Schrammel, "The Schrammel-Brannan Revision of
the Army Alpha Intelligence Examination." Transactions of
the Kansas Academy of Science, Vol. XXXIX (Topeka: Kansas
State Printing Plant), 1936, p. 239.

of correlation presents itself at this juncture. These were
selected by consulting established authorities on the subject
of intelligence testing. Pintner writes as follows:

And lastly, as various measures of intelligence
become perfected, we can check upon any new tests
of intelligence by comparing the results with those
obtained by more or less known standard measures.
The Binet Scale serves at present as one such
standard measure.

We must, however, avoid the assumption that the
Binet Scale as it now exists is a perfect measure,
and therefore, demand that all other measures show
a high degree of correlation with it.[6]

Tiegs states in another reference that in spite of
the difficult problems of measurement encountered, the
validity of intelligence tests is assumed to be very high.[7]
The measure of validity of an intelligence test must be
obtained in an indirect way. It is usually done by correlat-
ing the new scale with other intelligence tests whose stand-
ards have been accepted. He states further that the Stanford
Revision of the Binet-Simon Test has been used in this
manner. He suggests a method of studying relative valid-
ity of a test of intelligence by combining the results of a
group of tests and computing a coefficient of correlation
between each test and the average of the others in the group.

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[6] Rudolph Pintner, Intelligence Testing (New York:
Henry Holt and Company, 1931), p. 65.

[7] Ernest W. Tiegs, Tests and Measurements for Teach-
ers (Boston: Houghton Mifflin Company, 1931), p. 303.

In considering this information, it was decided to use the Stanford Revision of the Binet-Simon Test as an individual measure. The group test selected was the Otis Group Intelligence Scale Advanced Examination, Form B. The computed mental ages for all tests were totaled and correlated against the mental ages of each test. It was thought that a composite of the mental ages of the tests would give a more accurate and complete criterion of intelligence than any one test alone.

PRESENTATION OF DATA

Community

The communities in which the tests were given are
located in fertile farming country of Kansas. Richmond is
located sixteen miles south of Ottawa, Kansas. Mildred,
Kansas, the second community used, is located about forty-
six miles south of Ottawa, Kansas. Both are small rural
towns with populations under 500. The people of Mildred are
mostly skilled laborers and farmers. At one time one of
the largest cement plants in Kansas operated in this little
town. It is closed at the present time. Most of the skilled
laborers have sought employment elsewhere; as a consequence,
the town is rapidly deteriorating and the majority of those
left are decidedly of the lower occupational levels. Richmond
is typically a farming community. Richmond probably has a
higher type of culture than the average small town, which
makes it possible for them to extend more cultural advantages
to their children than less fortunate communities can afford.

Neither of the schools in these towns had been tested
previous to this study, so the students were in no way test
wise or test conscious. Parents reacted quite favorably as
evidenced by their inquiries relative to the nature of the

testing program.

Schools

Schools of both communities are organized under the
8-4 plan of organization. They are standard in every respect.
The children tested ranged from the fourth grade to the
ninth inclusive. The average chronological age was about
twelve years. Each school was approximately equally divided
in regard to the number of boys and girls enrolled.

The teachers were favorable to the study and cooper-
ated efficiently in establishing conditions whereby the best
results might be obtained. Instructors in the Mildred
schools were of the opinion that their pupils were a little
below the average for their respective grades while teachers
at Richmond felt they had on the average a superior group.
This fact was later substantially corroborated by the results
of the study.

Administering Tests

With the aid of Dr. H. E. Schrammel the following
tests were selected and obtained from the Bureau of Educa-
tional Measurements, Emporia, Kansas, of which Dr. Schrammel
is the director:

    1. Otis Group Intelligence Scale Advanced Examination,

       Form B.

2. Army Group Examination Alpha, Schrammel-Brannan Revision, Form A.

3. Stanford Revision of the Binet-Simon Test.

4. Emporia Silent Reading Test, Form B.

The same order of administering the tests was used throughout. The Revised Army Alpha was given first, followed by the Otis Group test. These tests were given on consecutive mornings from eight-thirty o'clock until completion. After these had been given, they were followed by the Stanford Binet individual test. The tests at Richmond were administered by the writer. All the group and individual tests given at Mildred, were given by Mrs. C. W. Baker. Both the writer and Mrs. Baker have college degrees and are well qualified in testing work of this nature. Both have had college courses in the administering and interpretation of test materials.

Test Conditions

The pupils were seated in the regular classrooms for the group tests. Each occupied his regular desk so that the conditions of giving the test would correlate well with the ordinary school routine. Even though the students were seated quite near each other, cheating was a negligible factor. This can be explained in part by the very nature of the test and the close supervision exercised by the examiner.

The buildings were standard for both schools with average lighting facilities.

The group tests were given in the morning immediately after school convened. Only the instructions printed in the manual of directions were read before each test. The classroom teacher was not present during the administering of the tests.

The individual test procedure practically paralleled that for the group tests. The students were given numbers at the beginning of school each day. All went to the regular classes. As each student examined returned to class, the person holding the next number reported to the examiner.

A separate room was used for the giving of the individual tests. The room was well lighted, quiet, and well ventilated. No one was allowed in this room except the examiner and the student. It was not difficult to gain the confidence of the students, since both examiners were not entirely strangers in the community.

Scoring Tests

All the group tests were sent to the Bureau of Educational Measurements of the Kansas State Teachers College, Emporia. They were scored, checked, and rechecked so that scoring errors could be practically eliminated. Reports of the results were returned to the writer immediately. Work

sheets were then compiled from these reports.

Correlations were computed for the following: Army Group Examination Alpha Schrammel-Brannan Revision and Otis Group Intelligence Scale Advanced Examination, Form B; Army Group Examination Alpha Schrammel-Brannan Revision and Stanford Revision of the Binet-Simon Test; Stanford Revision the Binet-Simon Test and Otis Intelligence Scale Advanced Examination, Form B.

Intelligence quotients and raw scores were used in computing these correlations.

Mental ages were computed for each test. These combined into a composite criterion and correlations computed for the Army Group Examination Alpha Schrammel-Brannan Revision and the total mental ages of the groups; Otis Intelligence Scale Advanced Examination, Form B and the total mental ages of the group; Stanford Revision of the Binet-Simon Test and the total mental ages of the group.

All computations were checked for accuracy by Harold Bechtoldt, research assistant of the Bureau of Educational Measurements.

CHAPTER III

RESULTS OBTAINED IN THE STUDY

Data from Findings of other Test Correlations

Before attempting to evaluate the correlations found in this study, or to answer the query, how good are these correlations, it might be well to examine some findings of others in similar studies.

Dearborn[1] calculated the coefficient of correlation for the Stanford Binet and the Dearborn Series I, which he found to be .84. This is based on the I. Q's.

Pintner lists the following for the original Army Alpha examinations:[2]

Alpha yields correlations with other measures of intelligence as follows: with officers' ratings of their men .50 to .70; with Stanford Binet measurements .80 to .90; with Trabue B and C Completion Tests combined .72; with examination Beta .80; with composite of Alpha, Beta and Stanford .94; in the case of school children, Alpha correlates with teachers' ratings .67 to .82; school marks .50 to .60.

Tiegs records the results from the correlations of fourteen group intelligence tests with the average of the

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[1] Walter Fenno Dearborn, Intelligence Tests (Boston: Houghton Mifflin Company, 1928), p. 115.

[2] Rudolph Pintner, op. cit., p. 220.

other thirteen.[3] Some of them are Terman Group .75; Otis
.72; National .74; Haggerty .73. The table shows correla-
tions from .46 to .75 for the entire group, with an average
of .63.

He lists these additional correlations:[4] Terman
Group and Stanford Binet .73, N-160; Pintner-Cunningham
Primary Mental Test and Stanford Binet .75, N-158; Otis
General Intelligence Examination and Army Alpha .84.

Valentine found a correlation of .70 ± .04 for the
Otis tests and the Stanford Binet.[5] He states further that
he thinks this correlation unquestionably high.

Gates[6] found correlations for the Otis Advanced and
Stanford Binet mental ages of .61.

Root[7] correlated the Stanford Binet with several well
known group tests and found correlations ranging from .68 ±

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[3] Ernest Tiegs, op. cit., p. 304.

[4] Ibid., p. 314.

[5] P. F. Valentine, "A study in intelligence and
educational correlations." Journal of Educational Research,
No. 3, 3:207, March, 1921.

[6] A. I. Gates, "The correlations of achievement in
school subjects with intelligence tests and other variables."
Journal of Educational Psychology, Nos. 3, 4, and 5, 13:230,
March, April, May, 1922. Table VI.

[7] A. L. Root, "Correlations between Binet Tests and
group tests." Journal of Educational Psychology, No. 5,
13:290, May, 1922.

.04 to .88 ± .01.

De Camp in testing 776 college freshmen in 1920-21 of the liberal arts and natural sciences found a correlation of .50 ± .04 for the Army Alpha and the Stanford Binet (scores were used).[8]

Avery found in examining 153 children of the public schools of Fort Collins, Colorado, a town of about nine thousand people, a coefficient of correlation of .80 ± .019 for the Terman Intelligence Test, Form A with the Stanford Binet Scale.[9] These tests were limited to eleven year olds.

Wood and Schrammel[10] found a correlation between the original Army Alpha test and the Terman group test of .88 ± .01; and between the original Army Alpha test and the Thurstone Psychological examination, .77 ± .02. These were based on scores.

The Bureau of Educational Measurements, Kansas State Teachers College, Emporia, Kansas have computed the following

[8] J. E. De Camp, "Studies in mental tests." School and Society, No. 535, 14:257, October, 1921.

[9] G. T. Avery, "A study of the Binet and Terman intelligence tests with eleven year old children." Journal of Educational Research, No. 5, 7:431, May, 1923.

[10] H. E. Schrammel and E. R. Wood, Success and Failure of College Students (Bulletin of the Graduate Division Studies in Education, Kansas State Teachers College, Emporia, Kansas, No. 5, Topeka: Kansas State Printing Plant, January, 1931). p. 63.

correlations: Otis S-A (raw scores) and the Army Group
Examination Alpha, Schrammel-Brannan Revision .81 ± .017;
Otis S-A and Schrammel-Brannan Revision Army Alpha (I. Q's.)
.77 ± .02; Detroit Alpha and the Schrammel-Brannan Revision
of the Army Alpha (I. Q's.) .86± .02; Detroit Alpha and
Schrammel-Brannan Revision of the Army Alpha (raw scores)
.84 ± .02; Detroit Primary and the Revised Army Alpha
(I. Q's.) .68 ± .05; Detroit Primary and Revised Army Alpha
(raw scores) .64 ± .06.

Summarizing the above data, correlations for group
tests of intelligence and the Stanford Binet range from
.50 to .90; for group tests of intelligence with group tests
.46 to .88. The average of these would probably fall in
the seventies. These data are not conclusive nor too reli-
able as a measure of comparison since the different refer-
ences did not always give the basis of making the corre-
lations. Yet, they are indicative of what might be expected
to be a high or reliable correlation.

Results of Present Study

Garrett explains the term "high correlation" in this
manner:[11]

> Strictly speaking, the term "high correlation"
> should be applied only to coefficients which are
> .95 or above. However, in mental, social, and
> educational measurements there are so many actual

and potential sources of error due to the variability
of the material dealt with, and the relative crudity
of the measurements made, that very few tests indeed
could meet this requirement. Very seldom do correla-
tions between tests run above .70 or .75; and hence
it is probably justifiable, in view of the limitations
mentioned, to regard such coefficients as high.[11]

Table I shows the distribution of the scores made on
the Emporia Silent Reading Test, Form B. It will be noted
that the mode for the distribution falls within the interval
33-35. The median score is slightly lower than the mode,
falling in the first interval below the mode score. Accord-
ing to Table I, the median is 30. Interpreting the median
score from Table I, Manual of Directions, Emporia Silent
Reading Test,[12] the grade equivalent for the median, 30 is
found to be equal to the norm for the seventh grade for
mid-year testing; and for the end-of-year testing, it is
approximately equivalent to the norm for the sixth grade.
The modal score translated from the same table is equivalent
to the norm for the eighth grade end-of-year testing.

These facts indicate that practically all pupils made
a respectable showing on the Reading Test. The reading
ability of the group is sixth grade standard and above.

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[11]Henry E. Garrett, Statistics in Psychology and
Education. (New York: Longmans, Green & Co., 1926), p. 298.

[12]H. E. Schrammel and W. H. Gray, Manual of Directions
Emporia Silent Reading Test. (Bureau of Educational Measure-
ments, Kansas State Teachers College, Emporia, Kansas), Table I.

TABLE I

FREQUENCY DISTRIBUTION OF THE SCORES MADE ON THE EMPORIA SILENT READING TEST

Scores	Frequencies
36-38	9
33-35	25
30-32	13
27-29	18
24-26	9
21-23	9
18-20	3
15-17	4
12-14	1
9-11	--
6- 8	2
3- 5	--

Total Number	93
High Score	38
Median	30
Low Score	7

Read table thus:
There were nine students with
scores of 36-38, etc.
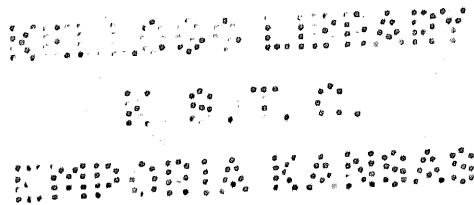
Since performance on the Revised Army Alpha test depends indirectly on the pupils' ability to read the directions for each test, these students would not be handicapped because of a lack of reading skill.

Table II gives the comparative frequency distributions for the I. Q's. obtained on the intelligence tests. It will be observed that the distributions of I. Q's. for the Revised Army Alpha and the Stanford Binet show practically the same pattern in respect to central tendency and variability. The Otis test shows a wider variation, however, than either the Stanford Binet or Revised Army Alpha , and also a slightly higher central tendency. For the Otis test, most of the I. Q's. run from 95 to 125; for the Revised Army Alpha, 85 to 110; and for the Stanford Binet, 80 to 105.

Table III shows the inter correlations for the group and individual tests. A correlation coefficient for raw scores of .88 ± .015 for the Revised Army Alpha and the Otis was obtained. The I. Q. coefficient is not quite so high. It is .79 ± .026.

The coefficient of correlation for the Revised Army Alpha raw scores and the Stanford Binet mental age score is .75 ± .03. The coefficient for the I. Q's. is .71 ± .035. The difference between the coefficients of .71 and .75 is only .04. It is logical to conclude that since the difference is small, both the Revised Army Alpha and the Stanford Binet

TABLE II

COMPARATIVE FREQUENCY DISTRIBUTION FOR THE I. Q'S. OF THE
OTIS GROUP INTELLIGENCE SCALE ADVANCED EXAMINATION FORM B;
ARMY GROUP EXAMINATION ALPHA, SCHRAMMEL-BRANNAN REVISION;
STANFORD REVISION OF THE BINET-SIMON

I. Q's.	Otis Group Form B	Revised Army Alpha	Stanford Revision Binet-Simon
150--154	1	--	--
145--149	2	--	--
140--144	--	--	1
135--139	--	1	--
130--134	2	2	1
125--129	6	1	2
120--124	10	6	2
115--119	12	1	4
110--114	7	9	5
105--109	11	10	6
100--104	10	15	13
95-- 99	15	11	14
90-- 94	5	11	14
85-- 89	3	10	8
80-- 84	3	7	11
75-- 79	3	4	6
70-- 74	2	1	3
65-- 69	--	3	2
Total No.	92	92	92
Median	107.3	99.5	95.7
Mean	107.9	99.29	96.41
Standard Deviation	16.52	14.75	14.55

Read table thus: There is only one
student with an I. Q. from 150-154 for the
Otis Group test. There are two students for
the Otis Group test; two for the Revised Army
Alpha test; and one for the Stanford Binet
test, with I. Q's. from 130-134.

TABLE III

INTER CORRELATIONS BETWEEN THE TESTS

Tests	Raw Scores		I. Q's.	
	Correlation	P. E.	Correlation	P. E.
Revised Army Alpha and Otis Group, Form B	.88	.015	.79	.026
Otis Group, Form B and Stanford Revision of Binet-Simon	.81	.024	.77	.028
Revised Army Alpha and Stanford Revision of Binet-Simon	.75	.03	.71	.035

Read table thus: The correlation between the Army Group Examination Alpha, Schrammel-Brannan Revision and the Otis Group Intelligence Scale, Advanced Examination, Form B, raw scores was .88 ±.015; I. Q's., .79 ± .026.

interpret raw scores into I. Q's. in about the same manner
and the difference in the coefficients is due probably to a
difference in the scores rather than a difference in the
interpretation.

In examining Table III, the coefficients of correla-
tion of .88 for raw scores and .79 for I. Q's. shows a diff-
erence of .09 when the Revised Army Alpha test was compared
with the Otis Group test. This would lead to the assumption
that the difference here being much larger, it was due not
only to a difference in raw scores but also to a difference
in interpretation of raw scores into I. Q's.

Table IV shows the correlations obtained between the
mental ages for each test and the average mental ages of the
tests combined. The Revised Army Alpha test is second with
a coefficient of .93 ± .01 when correlated with the average
mental ages criterion of the three tests. A spurious factor
enters into this correlation which might detract somewhat
from its validity. However, the Revised Army Alpha and the
Stanford Binet mental ages are practically the same. The
Otis Group mental ages being a little higher would probably
explain the higher correlation for this test and the total
mental age criterion.

Garrett is of the opinion that it is valid to compare
the correlations of the separate tests with the composite

TABLE IV

CORRELATIONS BETWEEN THE MENTAL AGES OBTAINED FROM EACH TEST AND THE AVERAGE MENTAL AGE OF THE THREE TESTS COMBINED

Average Mental Ages and	Correlation	P. E.
Revised Army Alpha	.93	.01
Otis Group	.95	.007
Stanford Binet	.91	.012

Read table thus: For the Army Group
Examination Alpha, Schrammel-Brannan Revision
and the total mental ages criterion, the
coefficient of correlation equals .93 ± .01.

scores in order to discover which tests are most representative of the capacity measured by them all.[13] This is true, he explains, if the separate tests contribute approximately the same amount to the composite of them all.

The Stanford Binet and the Revised Army Alpha more nearly parallel each other in this respect with coefficients of .91 and .93 respectively. The fact that all three coefficients range from .91 to .95 would indicate that the tests contributed practically the same amount to the composite.

From the data presented in Table V, a comparison of results for the three tests may be made. It will be noted that the Otis Group test yields high I. Q's., higher than those of either the Revised Army Alpha test or the Stanford Binet test. The I. Q's. of the Revised Army Alpha test and the Stanford Binet test show practically the same range. The range for the I. Q's. of the Revised Army Alpha runs from 66 to 138, while the I. Q's. of the Stanford Binet range from 68 to 140. The Revised Army Alpha test is two points lower than the Stanford Binet for the I. Q. range.

If the average I. Q. of 100 is set up as a standard, and assuming that the groups used in this study are average, the test which would come nearest to a mean I. Q. of 100

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[13]Henry E. Garrett, op. cit., p. 261.

TABLE V

COMPARISON OF RESULTS FOR THE
OTIS GROUP INTELLIGENCE SCALE ADVANCED EXAMINATION, FORM B;
ARMY GROUP EXAMINATION ALPHA, SCHRAMMEL-BRANNAN REVISION;
STANFORD REVISION OF THE BINET-SIMON

Tests	No. of Cases	Highest I. Q.	Lowest I. Q.	Third Quartile	Median	First Quartile	Mean	Standard Deviation
Revised Army Alpha	92	138	66	108.5	99.5	89.0	99.29	14.75
Otis Group, Form B	92	150	71	117.4	107.3	96.8	107.9	16.52
Stanford Revision Binet-Simon	92	140	68	104.2	95.7	85.6	96.41	14.55

Read table thus: For the Army Alpha Examination Alpha, Schrammel-Brannan Revision there were 92 cases, highest I. Q. is 138; lowest I. Q. is 66; third quartile is 108.5; and so on.

would, perhaps, be more representative of the capacity measured by the three tests. In studying Table V, it is found that the mean I. Q. of 99.29 for the Revised Army Alpha test comes nearest to the average of 100, in fact, it is practically equal to it. The Otis Group test ranks third in this respect; and the Stanford Binet, second. The point the writer is trying to make here is that the Revised Army Alpha test comes the nearest of the three tests in designating the groups used in the study as average. This fact, that the classes were average, compares favorably with the teachers' estimates of the intelligence of the groups in this study.

The most reliable measure of variability is the standard deviation. In Table V, the sigmas of the Revised Army Alpha and the Stanford Binet are 14.75 and 14.55 respectively, indicating that the I. Q's. of the two tests have grouped themselves almost identically. The larger sigma of 16.52 for the Otis Group represents a greater dispersion of I. Q's.

In Figure 1, the graph of the I. Q's. for the three tests, indicates that the curve for the Revised Army Alpha and the Stanford Binet are very similar, more so than either of them and the Otis Group. The distributions for the Revised Army Alpha test and the Stanford Binet test are about normal. There is little indication of skewness.
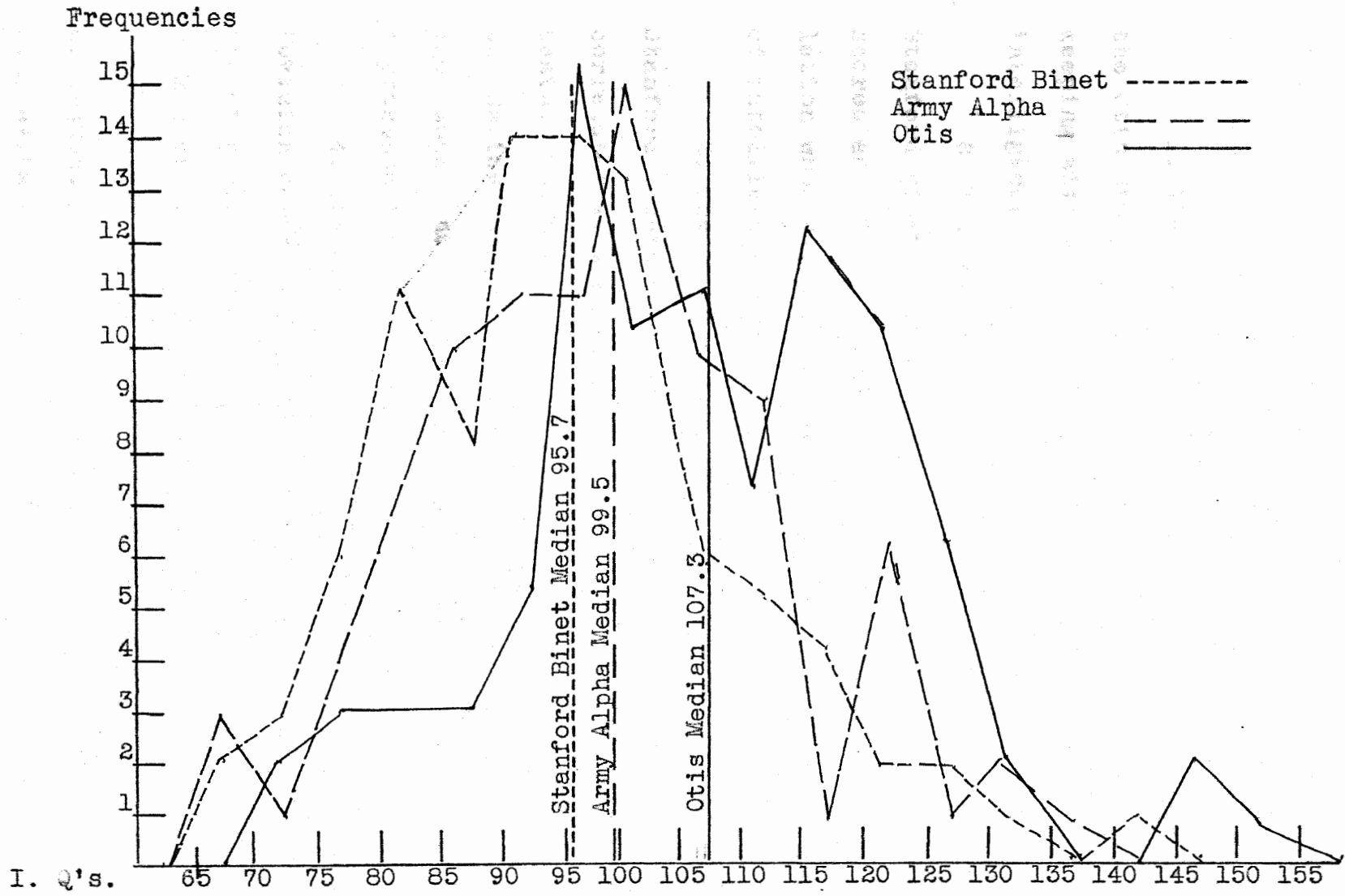
FIGURE 1

A GRAPHICAL COMPARISON OF THE I. Q'S. OBTAINED BY
EACH OF THE THREE INTELLIGENCE TESTS

Summary

1. The Revised Army Alpha test correlates highly with
the Otis Group test. The coefficient of .88 ± .015 is in
keeping with what others have found for group tests of
intelligence.

2. The Revised Army Alpha when correlated with the
Stanford Binet shows a coefficient of .75 ± .03 for raw
scores and .71 ± .035 for I. Q's. This is also a high corre-
lation when compared with the results of other group tests
of intelligence with the Stanford Binet.

3. The Revised Army Alpha test is better than the
Stanford Binet and not so good as the Otis Group when it is
correlated with a composite of the mental ages of the three
tests. The coefficient of .93 ± .01 for the correlation of
the Revised Army Alpha and the composite criterion of mental
ages would indicate that the Revised Army Alpha was highly
representative of the capacity measured by them all.

4. The Army Group Examination Alpha, Schrammel-Brannan
Revision comes nearer the average I. Q. of 100 than either
the Otis Group Intelligence Scale Advanced Examination,
Form B or the Stanford Revision of the Binet-Simon.

5. It may be concluded that the mental ages and
consequently the I. Q's. derived from group testing with
Army Alpha Group Examination Alpha, Schrammel-Brannan

Revision are about as dependable as the mental ages and
I. Q's. secured through individual testing with the Stanford
Revision of the Binet-Simon tests.

CHAPTER IV

SUMMARY AND CONCLUSIONS

The original Army Alpha scale was devised during the World War. It was necessary to compute norms which would adapt the test for school use. This was done by James C. De Voss, and later by Wood and Schrammel.

In 1935, a suggested revision of the test was undertaken by Christine Brannan, which would bring the scale up to date in modern testing procedure.

The writer became interested in determining the validity of the revised test. This interest consummated in a proposed study for this objective. Criteria were established and communities were selected for use in making the purposed study.

The towns used were typical small, rural communities with standard schools. The grades used ranged from the fourth to the ninth inclusive. All tests were given under the direct supervision of the writer or Mrs. C. W. Baker, the other examiner. The scoring and the checking were done in the Bureau of Educational Measurements, Emporia. The correlations were computed by the writer and these results checked by the research assistant of the Bureau of Measurements.

Other studies could not be found of this nature, but some correlations were found for various group and individual tests of intelligence. It was found through these investigations that a coefficient of correlation of .70 or better was indicative of a high relationship.

The purpose of this study was to determine the validity of the Revised Army Alpha test as an intelligence examination, when it is compared with other accepted tests in this field.

The study disclosed that the Revised Army Alpha test correlates highly with the Otis Group Test. The coefficient of .88 ± .015 is very high when compared with what others have found for group tests of intelligence.

The Revised Army Alpha ranks exceedingly well with the Stanford Binet as a test of intelligence. A correlation of .75 ± .03 shows a high degree of relationship for the tests.

The criterion of the mental ages for the average of the three tests was correlated with the Revised Army Alpha mental ages. This gave a correlation of .93 ± .01. This coefficient is very high. It is not significant for this fact alone, but it does indicate that the Revised Army Alpha test measures traits or capacities represented by the three tests equally as well as either the Otis or Stanford Binet.

The mean I. Q. for the Revised Army Alpha test is closer to 100 (the average) than either the Otis, which is

above; or the Stanford Binet, which is below.

In conclusion, the mental ages, and consequently the I. Q's. derived from group testing with the Revised Army Alpha, are more dependable than those obtained by the Otis Group test, since the results on the Revised test more nearly parallel those of the Stanford Binet than does the Otis.

Lastly, the mental ages of the Revised Army Alpha test are as dependable as the mental ages secured through the longer and more tedious program of individual testing with the Stanford Binet scale.

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