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MENTAL TESTS AND LINGUISTIC ABILITY

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When Yerkes in 1915 published his Point Scale[1] Revision of the Binet Tests, he included among his findings data relating to the social and racial status of children tested. He concludes "that conditions which are in part describable as sociological are correlated with differences in intellectual performance, which may amount to as much as 30 per cent of the total." He says: "In view of this fact, which our results amply demonstrate, it is obviously unfair to judge by the same norm of intelligence two children, the one of whom comes from an excellent home and neighborhood and the other from a medium to poor home and neighborhood.[2]"

This caution, so definitely stated by Yerkes, has by no means always been followed and the result is that conclusions, in many cases apparently unwarranted, or at least unproven, have been drawn in regard to the levels of intelligence of various social, economic and industrial groups.

Even Yerkes himself has accepted the results of the Army Tests as definitely showing the fact that there are clear grades of intelligence among various occupational groups. He places at the top the professional group and at the bottom the unskilled laborer.[2] While it is probable that this classification has some justification, it is evident

[1] Yerkes, Robert M., Bridges, James W. and Hardwick, Rose E.: "A Point Scale for Measuring Mental Ability." Warwick and York.

[2] *Op. cit.*, p. 82.

[3] "Army Mental Tests." New York, 1920, pp. 197-200.

that the workers in various occupations represent individuals varying greatly in economic and social status.

Some eminent authorities seem to hold to the opinion that environment is of but slight importance in determining the results of mental testing—Terman[1] believes "that the environment of the home affects the results but little."[2] Even "limited acquaintance with the language employed in the examination does not put the subject to great disadvantage in many of the tests." However, if it is true, as it seems reasonable to conclude, that mental tests are to be relied upon only when those who are tested have had the same or at least similar opportunities to become acquainted with the materials of the tests and the same interests in learning about these materials, then these environmental factors are of clear significance." In linguistic tests in particular it is of large moment that those tested have a substantially similar familarity with the words employed and have a similar skill in the use of these words.

The dependence of linguistic knowledge and skill on the ability to secure average or high scores in intelligence tests of the verbal type has been pointed out by several investigators. Whipple, for example, in a summary of his results secured at the University of Michigan says[3] that 94 per cent of the students tested received in the Army Alpha grades of *B* or better, and adds: "of the remaining 6 per cent, several were students of foreign extraction whose low score must have been in a considerable measure produced by a lack of ready command of English."

Burt,[4] who has recently given the Binet-Simon scale to London school children and has worked over his findings by careful statistical methods, concludes that various factors affect the result. "Sex influences it but little; social status rather more; educational and particularly linguistic attainments more profoundly than any other factor measurable with exactitude."

In a paper read last February before the National Society for the Study of Education in its meeting at Chicago, Rugg gave an interesting summary of the correlation coefficients obtained between intelli-

[1] The Intelligence of School Children." Houghton, Mifflin, Boston, 1919, p. 14.
[2] *Op. cit.*, p. 12.
[3] *Twenty-first Yearbook* of the National Society for the Study of Education, p. 266. Public School Publishing Co., Bloomington, 111.
[4] Burt, Cyril: "Mental and Scholastic Tests." Published by the London County Council, 1921, p. 208.

gence tests and school attainment. He finds in his review of various investigations that the coefficients are only moderate between scores in intelligence tests and achievement in "most non-verbal" educational tests. They are higher in the case of "somewhat verbal" educational tests and they are conspicuously high in the case of the "most verbal educational tests." The correlations between scores in verbal intelligence tests and vocabulary and reading attainments are particularly high.

Sometimes, no doubt, fluency in the use of the vernacular results in an individual receiving a higher score in an intelligence test of the linguistic type than his real mentality warrants. Downey is of the opinion that "undoubtedly the most important source of error in judging intelligence is the undue emphasis laid upon verbal fluency as a measure of social and general intelligence." This probably is a significant factor in the selection of college students for the Greek Letter fraternities. A freshman who can talk makes a decided impression on his fellow students, and in the hurry of the "rushing season" this first impression has an undue influence. Recently at Brown it has been found that the members of the freshman class pledged to fraternities received the following distribution in intelligence scores—best two-fifths, 31 per cent; lowest two-fifths, 56 per cent. Among the unpledged men, excluding those cases where because of various affiliations, etc. the men would not be "rushed" the distribution was—best two-fifths, 51 per cent; lowest two-fifths, 31 per cent. This is a striking demonstration of the intellectual superiority of the unpledged men. It is fair to assume that the pledged students in the entering class made an impression because of their verbal fluency quite out of proportion to their real ability. Apparently, too, this verbal fluency was but "skin deep." Clearly it did not serve the men who possessed it substantially when they were subjected to the test of the psychological examination. Goddard, like Downey, believes that high grades of mental deficiency are liable to go undetected when accompanied by verbal fluency.

However, while verbal ability may raise intelligence scores in some instances above the level of the actual intelligence of the person examined, its most marked effect is noted under the conditions when the lack of such a facility unduly lowers such scores.

The attention of one of the writers (C.) was first definitely called to this fact when in the winter of 1919-1920, the Otis Group Intelligence Scale, Forms A and B, was given under his direction by the

teachers in the elementary schools of Brookline, Massachusetts, to 1877 children in Grades IV to IX inclusive.[1]

The scores obtained were considerably above the Otis norms, particularly in the so-called "better districts" in Brookline. Otis Tests given at about the same time by Warren W. Coxe to the public school children of Cincinnati, Ohio, obtained quite different results. In this latter instance, the norms were below those published by Otis. The tests in both cities seem to have been given with due care and the disparity of results can hardly be due to differences of method or caution in administration. On the other hand, it cannot be assumed that a child in Brookline of 12 years of age has a mental age on the average 2 years in advance of a Cincinnati child of the same chronological age. The pronounced differences in scores between the Brookline children and the Cincinnati children may reasonably be attributed to differences in opportunities to learn words and acquire skill is their use. This conclusion is supported by the fact that the children in the poorer localities in Brookline did not score as high in the entire test as did the children in the more favored localities. However, in the arithmetic test (largely non-verbal in its nature) their scores were not inferior to those made by the children in the "better" localities.

Another piece of evidence in support of the above viewpoint has been found in examining the records of Brown University students in the light of their psychological tests. As a rule, men who score low in their psychological tests make a poor record in college. For example, out of a total of 95 men in last year's junior and senior classes who received low grades in their combined psychological tests, 70 have done distinctly poor work, 17 fair work, and only 8 good work. On investigating more carefully the records of these 8 men, it was found that at least 2 suffered from language handicaps, while the others were either slow thinkers, were indifferent or suffered emotional upsets. Further investigations have revealed at least 10 men in Brown University who have received psychological scores decidedly lower than their real mental ability because of language deficiencies. By *deficiencies* is not necessarily meant inability to speak English with correct pronunciation and reasonable fluency. The most conspicuous examples of language deficiencies have been found among students of Italian parentage. These students were born in America and have received their education in the public schools. They, however, have

[1] *Journal Educational Research,* Vol. III, No. 1, Jan., 1921.

lived in the Italian section and at home frequently converse in Italian and think in Italian. They have a limited English vocabulary and tend to think slowly in English.

Recently the writer (A.), Director of Research and Guidance in the public schools of Providence, has made an investigation of 50 children of American parentage and 50 of Italian parentage in the public schools of the city. The school status of these two groups of children is practically identical. They are taken from Grades V to VIII, inclusive; the ages of the American born children range from 11 to 16, those of the Italian born from 11 to 15; the average chronological age of the American born is 13.12 years, of the Italian 13.11 years; the average pedagogical age of the American children is 11.77 years, of the Italian 12. The school records of the Italian group indicate them to be in every way the equal in intelligence of the American group. When measured by the Stanford-Binet scale, the average IQ's as well as the distribution of the IQ's is only slightly in favor of the American group. However, when tested by the National Intelligence Tests, the average total score of the American children is 103; of the Italian children 90. In one test alone are the Italian children on the average equal to the American children and that is in the arithmetic test. Further, in the American group the agreement between the Binet scores and the National scores, is much closer than in the Italian group, the Italian children scoring decidedly lower in the National Tests than would be expected in the light of their school standing and of their IQ's derived from the Stanford-Binet. The explanation of these contradictions seems obvious. The Italian children are suffering from a language handicap; hence their intelligence as determined by their scores in the verbal group Tests, is rated decidedly too low. These facts are expressed in tabular form in Table 1.

Diagram I shows in detail the relation in the two groups between the Terman and the National scores expressed in mental ages. It will be observed that while the children in both groups tend to be rated lower in mental age by the National than by the Terman Tests, the difference is considerably greater in the Italian than in the American group. It is reasonable to suppose that the individual Terman tests are a more accurate determination of intelligence than the Group National Tests; further that the linguistic factor is less important in the former than in the latter tests. It would seem evident, then, that the National Tests do not give an accurate means of determining the mental ages of the Italian pupils and that the verbal

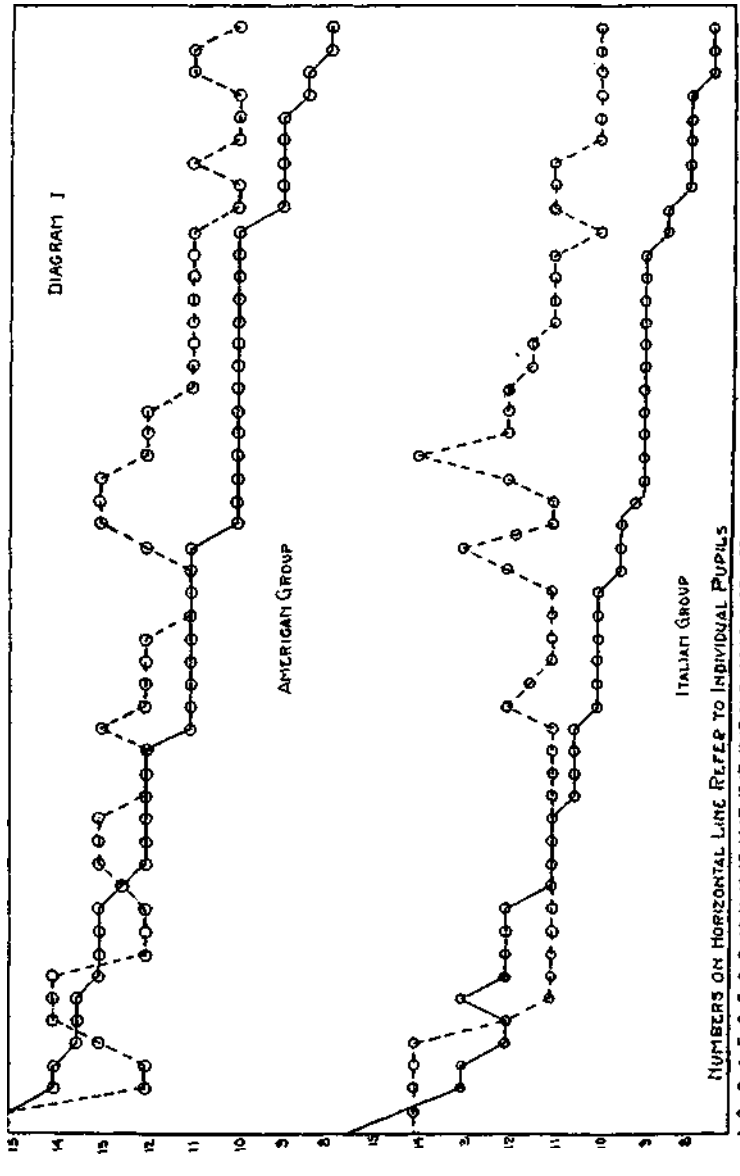
DIAGRAM I
AMERICAN GROUP
ITALIAN GROUP
NUMBERS ON HORIZONTAL LINE REFER TO INDIVIDUAL PUPILS
TERMAN TEST INDICATED BY

factor has contributed in lowering the individual scores. It is to be noted further from the diagram that the Terman and the National Tests for both groups are more closely in agreement at the higher mental ages than at the lower. The most striking divergence begins at about the mental age of 10, while from 11 to 15, including 19 pupils in the Italian group and 26 in the American group, the differences are unimportant.

Another comparison shows the greater agreement in the American group than in the Italian group between the mental ages derived from these two tests. By consulting Table II we find listed for the American group the mental ages of each pupil according to the National scores (N) and according to the Terman scores (T); also the difference, plus and minus, between the N mental ages and the T mental ages under column D. For the highest 25 in mental ages the total difference is 17.5, 10 plus and 7.5 minus, a very substantial agreement. For the lowest 25 the deviation totals 38, all plus.

In Table III we have a similar comparison for the Italian group. Here we find for the higher 25 in mental age a total difference of 21, with a plus difference of 14. In the lowest 25 we find no minus differences and a total plus difference of 63. Here again is a clear evidence that there is a much greater difference in the mental ages derived from the two tests in the Italian group than in the American group and also that in the Italian group the mental ages derived from the Terman scores are significantly higher than these ages derived from the National scores.

A detailed examination of Table IV, which shows the relation between the gross scores in the National Tests and grade placement for both groups, reveals the following facts: 15 Italian children received scores of 100 or above. All of these are found in the two upper grades. Twenty-three American children received similar scores, and 5 of this number are in Grade VI. Thirty-five Italian children received scores below 100 and of these 19 were in the two upper grades, while of the American children only 5 were in the two upper grades. In the two lower grades are found 16 Italian children and 22 American children. Thus judged by school attainment the Italian children are clearly less accurately classified in intelligence by the National Tests than are the American children. The objection may be raised that the school attainment of the two groups may not be a valid indication of their respective abilities, since the Americans and the Italians may be judged by different standards.

This is, however, not likely to be the case since the American and the Italian children were in the same schools and in the same rooms and in about equal proportions.

Another significant piece of evidence indicating that the Italian children in the Providence public schools suffer in their tests from a linguistic handicap is shown from comparative scores of a group of American and of Italian children in the Grade *VA.* One hundred and seventy-three American children and 163 Italian children were given the Lippincott-Chapman Classroom Products Survey Tests. These tests are composed of two sub-tests in Arithmetic (fundamentals and problems) and two reading sub-tests (selections and continuous passages). These tests, although designed to measure school achievement, are in reality for all essential purposes intelligence tests, since they are made up of elements commonly found in intelligence tests. Tables V to IX inclusive indicate the distribution of scores made by individual pupils.

In these tables the figures at the left under "score" give the standards of achievement for the various levels of the various grades according to the published norms of Chapman. In the present article the highest levels, 9 and 9-f-, have been combined under "nine," and the lowest levels, 1 and 1—, have been combined under "one." A study of these tables shows that the two groups are nearly equal in ability in fundamentals in arithmetic. Here language plays no definite part. In arithmetic problems the language handicap begins to be felt, as shown by the greater number of Americans above the grade median. In both of the reading tests most of the Americans are above the grade median, while most of the Italians are below. Chart IX shows how the language handicap affects the total score made by the Italians.

Still another bit of corroborative evidence as to the fact that linguistic ability plays an important r61e in tests of the verbal type is furnished by results obtained from time to time through tests given in the Mary C. Wheeler school for girls. This school is a high grade private school located on the East Side in the city of Providence and draws largely its children from families of superior social and economic status. The Otis Tests given in this school in the academic year 1919-20 "show, from the fourth to the seventh grades inclusive, that considerably more than half of the pupils tested fall in the classes near genius, very superior, or superior, while only a small percentage are below the average."[1] Later tests made

[1] *Journal of Educational Research, op. tit.*

during the academic year 1921-22 are in agreement with these earlier findings. Tests given in Grades VI and VII to 29 children show all to be above the Otis norms. Thirty-six children given the National Tests in Grades V, VI and VII have with a single exception IQ's at 100 or above, 27 being above. The median IQ is 116, the highest 150 and the lowest 96. The school achievement does not indicate that these children are of marked superior ability. Although 60 per cent of the children are under age for their grades, their teachers are of the opinion that as a group they are not exceptionally bright and consider that in most instances their intelligence scores give them too high a mental rating.

The above results would seem to indicate that the opinion of Phillips,[1] although possibly an over-statement, has a large element of truth. He says, "I have demonstrated and can demonstrate that, of all the intelligence tests yet published, 75 per cent of the questions depend more on experience, on associations and on the general and specific education of the individual than on native intelligence. Of the 41 children found in California having a superior IQ all save one belonged to families of culture and intelligence, and of which one or both parents were college graduates. Association in environments, not native intelligence, qualified them to answer."

The writer (C.) is moved to add in comment the following: *All* intelligence tests yet published depend for their validity on experience, on association and on the general and specific education of the individual. However (and here must be added the qualifying statement to prevent those who read these opinions from making a wrong inference as to the worth of these tests), such tests, depending as they do *absolutely* on the experiences of those tested, are valid in showing differences in native mentality when, *and only when,* those tested have had common experiences and similar interests.

From the evidence now in our possession we can reasonably conclude that linguistic ability is an important factor in the score obtained by an individual in an intelligence test that is based largely on words and their uses. This ability must definitely be considered whenever an individual in a group tested deviates in any marked degree in this ability from his fellows in the group. How to discover this deviation in linguistic ability is, however, in most instances a difficult task. Of course when the individual examined is foreign born, and when he speaks English in a halting and inaccurate way, he can be easily singled

[1] *American Education,* Vol. XXVI, No. 1922, p. 61.

out for special attention. It has been pointed out, however, that an individual may possess a pronounced linguistic handicap and still speak the vernacular with a reasonable accuracy and fluency. It is also to be remembered that the possession of unusual linguistic fluency may give an individual a decided advantage in an intelligence test and result in the securing by him of a score that places his apparent mentality considerably above what it really is. Such cases as these clearly cannot be detected by ordinary observation. Various ways suggest themselves as means by which a linguistic handicap or unusual verbal fluency may be discovered.

1. In testing a group of children or adults to determine their mentality, a preliminary test to discover their reading ability might be employed. For instance the various tests devised by Thorndike to measure the extent of vocabulary and the understanding of paragraphs read silently, suggest themselves. However, such tests would help us in our own particular problem little, if at all, and for this quite apparent reason—the differences in reading ability discovered might be due to one of two causes, or to both combined. The differences in the scores obtained by various individuals might result from actual differences in intelligence, or from differences in opportunities to acquire familiarity with and fluency in the vernacular. Without further evidence there would be no way of determining the presence of these two factors or their relative amounts.

2. A preliminary survey might be made of the social and economic status of the individuals tested. When this status is decidedly below that of the average of the group, there would be presumptive evidence of a significant language handicap. In particular, children and adults living with foreign born and largely non-English speaking groups should be singled out for further investigation. On the other hand those coming from particularly favored environment where the social status is high and the cultural influences superior should also be given special consideration, since their intelligence scores are likely to indicate a mentality in excess of that which they actually possess.

3. In testing a group it would be well to employ a number of mental examinations. Our belief is that for children in the upper grades, youth in the high school, and adults in our colleges and universities, the procedure should be somewhat as follows: There should be two tests of the linguistic type given on succeeding days, or weeks under conditions as to time, place, and methods of administration as nearly identical as possible. These tests may be either two forms of the same

mental examination, or two different examinations, preferably the latter. In any event each of these examinations should be preceded by a simple fore-examination to acquaint all with the nature of the tests to be employed. Later, a third mental examination of the performance type should be given. When there is substantial agreement for a given individual in the results of these separate examinations then the scores may be taken as expressing reasonably well the actual mentality of that individual. When there is a marked disagreement this means that such an individual will require further investigation, such as interviews and testing by individual examinations of the Binet and performance types. In this connection it should be pointed out that we need better developed and more completely standardized tests of the group performance type, adapted to the intelligence of older children and adults. The majority of the performance tests so far devised have been prepared for children in the primary grades, illiterates and non-English speaking adults. These are not difficult enough, as a rule, to discriminate between the higher levels of mentality. One test, however, the Myers' Mental Measure,[1] is a group examination entirely of the non-linguistic variety, designed for all grades from the kindergarten to the university. Dearborn has likewise extended his Non-linguistic Tests to cover all grades through the high school. The writer (C.) has not employed this test in his own work, but published accounts seem to indicate that it has been reasonably successful in measuring native intelligence.[2]

4. When intelligence tests are employed primarily for the purpose of promotion and elimination, particularly for the latter purpose, no pupil or student who scores conspicuously low should be dealt with entirely on the basis of such mental examinations. These pupils and students should be further investigated. Their previous academic records should be studied, the opinions of their teachers obtained,

[1] *Twenty-first Yearbook* of National Society for the Study of Education, Chapter IV. Public School Publishing Co.

[2] Perhaps a note here may not be out of place in regard to the relation between non-verbal tests and linguistic ability. It does not seem to follow necessarily when a test is employed in which no words are used that for this reason linguistic ability is not brought into play, particularly when rational processes are involved. The writer (C.) constantly catches himself when working with non-verbal tests using inner speech which becomes more and more conscious when a problem increases in difficulty and complexity. This seems to mean that we cannot think to any extent without the use of words, hence we can never hope to frame intelligence tests that do not depend to a certain degree upon linguistic knowledge and ability.

their social and economic status investigated, etc. There should be at least one personal interview, and a further mental examination of the individual type given.

From the results that have been obtained, particularly with students at Brown University, based on investigations now extending over a period of more than 4 years, the writer (C.) is convinced that the group examination of the verbal type when given with care will reveal in general the actual mentality of those tested to a degree of accuracy that is sufficient for all practical purposes in from 80 to 90 per cent of the cases tested.

That it fails at times to indicate accurately the real mentality of the individual or a group of individuals does not mean that it should be abandoned, but it does mean that in cases vitally affecting the school career of the pupil utmost caution should be employed.

TABLE I.—SUMMARY

	AMERICAN	ITALIAN
1. Number of pupils	50	50
2. Grades	5-8	5-8
3. Ages	11-16	11-15
4. Average chronological age	13.12	13.11
5. Average pedagogical age	11.77	12.
6. Average score (National)	103	90
7. Average IQ.		
Terman	92	91
National	85	76
8. Average score-National Test.		
Part 1	25	24
Part 2	20	17
Part 3	21	17
Part 4	10	10
Part 5	27	22
	103 (American	90 (Italian)
9. Correlation between two tests ρ	= .73 (American)	.79 (Italian)

TABLE II.—AMERICANS

Pupil	N	T	D	Pupil	N	T	D
1	15.5	15	− 0.5	26	11	12	1
2	15	15	0	27	11	12	1
3	14	12	− 2	28	10	13	3
4	14	12	− 2	29	10	12	2
5	13.5	13.5	0	30	10	10	0
6	13.5	14	.5	31	10	11	1
7	13.5	14	.5	32	10	13	3
8	13	12	− 1	33	10	11	1
9	13	12	− 1	34	10	13	3
10	13	14	1	35	10	12	2
11	13	12	− 1	36	10	11	1
12	12.5	12.5	0	37	10	10	0
13	12	12	0	38	10	10	0
14	12	13	1	39	10	12	2
15	12	12	0	40	10	12	2
16	12	13	1	41	10	11	1
17	12	12	0	42	9	10	1
18	12	13	1	43	9	10	1
19	11	13	2	44	9	11	2
20	11	11	0	45	9	10	1
21	11	11	0	46	9	10	1
22	11	11	0	47	8.5	10	1.5
23	11	12	1	48	8.5	11	2.5
24	11	12	1	49	8	11	3
25	11	12	1	50	8	10	2
			10				+38
			−7.5				
			+2.5				

TABLE III.—ITALIANS

Pupils	N	T	D	Pupils	N	T	D
1	15.5	14	− 1.5	26	9.5	12	2.5
2	15	15	0	27	9.5	13	3.5
3	14	13	− 1	28	9.5	11	1.5
4	14	13	− 1	29	9	11	2
5	12	12	0	30	9	12	3
6	12	14	2	31	9	14	5
7	11	13	2	32	9	11	2
8	11	11	0	33	9	11.5	2.5
9	11	12	1	34	9	11	2
10	11	12	1	35	9	12	3
11	11	12	1	36	9	11.5	2.5
12	11	11	0	37	9	11	2
13	11	11	0	38	9	12	3
14	11	11	0	39	9	11	2
15	11	12	1	40	9	12	3
16	10.5	11	.5	41	8.5	10	1.5
17	10.5	11	.5	42	8.5	11	2.5
18	10.5	11	.5	43	8	11	3
19	10.5	11	.5	44	8	11	3
20	10	11	1	45	8	10	2
21	10	12	2	46	8	10	2
22	10	11.5	1.5	47	8	10	2
23	10	11	1	48	7.5	10	2.5
24	10	11	1	49	7.5	10	2.5
25	10	11	1	50	7.5	10	2.5
			17.5				+63
			− 3.5				
			+14.				

TABLE IV.—TABLE SHOWING THE RELATION BETWEEN SCHOOL GRADE AND NATIONAL SCORE

50 Italians

Scores	Grade and pedagogical age						Totals
	VA 10.5	VIB 11	VIA 11.5	VIIB 12	VIIA 12.5	VIIIB 13	
130–143	..	..	..	1	..	..	1
120–129.9	..	..	..	..	1	2	3
110–119.9	..	..	..	..	..	2	2
100–109.9	..	..	..	2	5	2	9
90– 99.9	..	..	3	4	3	..	10
80– 89.9	..	..	1	4	4	..	9
70– 79.9	..	2	3	3	1	..	9
60– 69.9	1	5	1	..	..	..	7
Totals.....	1	7	8	14	14	6	50

50 Americans

Scores	Grade and pedagogical age						Totals
	VA 10.5	VIB 11	VIA 11.5	VIIB 12	VIIA 12.5	VIIIB 13	
130–144	..	..	..	1	2	..	3
120–129.9	..	1	1	1	2	3	8
110–119.9	..	..	1	..	1	5	7
100–109.9	..	1	1	2	1	..	5
90– 99.9	..	7	4	3	2	..	16
80– 89.9	1	3	1	..	..	..	5
70– 79.9	..	4	..	..	..	..	4
60– 69.9	..	2	..	..	..	..	2
Totals.....	1	18	8	7	8	8	50

TABLE V.—COMPARISON OF ACCOMPLISHMENT OF 173 AMERICANS AND 163 ITALIANS IN THE *VA* GRADE, AS MEASURED BY THE LIPPINCOTT-CHAPMAN CLASSROOM PRODUCTS SURVEY TESTS

Arithmetic Fundamental Test

Score	Distribution of scores of 173 Americans (Each star indicates an individual score)	Totals
Highest—9	**********	15
8		0
7	**********	21
6	**********	46
Median—5	**********	52
4	**********	24
3	*********	9
2	******	6
Lowest—1		0
	Grand total	173

Score	Distribution of scores of 163 Italians (Each star indicates an individual score)	Totals
Highest—9	**********	11
8		0
7	**********	22
6	**********	33
Median—5	**********	46
4	**********	29
3	**********	14
2	*****	5
Lowest—1	***	3
	Grand total	163

TABLE VI.—COMPARISON OP ACCOMPLISHMENT OP 173 AMERICANS AND 163 ITALIANS IN THE *VA* GRADE, AS MEASURED BY THE LIPPINCOTT-CHAPMAN CLASSROOM PRODUCTS SURVEY TESTS

Arithmetic Problems Test

Score	Distribution of scores of 173 Americans (Each star indicates an individual score)	Totals
Highest—9	**********	34
8	**********	23
7	**********	34
6	**********	34
Median—5	**********	36
4	**********	10
3		0
2	**	2
Lowest—1		0
	Grand total	173

Score	Distribution of scores of 163 Italians (Each star indicates an individual score)	Totals
Highest—9	********	8
8	**********	10
7	**********	22
6	**********	48
Median—5	**********	41
4	**********	22
3	********	8
2	***	3
Lowest —1	*	1
	Grand total	163

TABLE VII.—COMPARISON OP ACCOMPLISHMENT OF 173 AMERICANS AND 163 ITALIANS IN THE *VA* GRADE, AS MEASURED BY THE LIPPINCOTT-CHAPMAN CLASSROOM PRODUCTS SURVEY TESTS

Reading Selections Test

Score	Distribution of scores of 173 Americans (Each star indicates an individual score)	Totals
Highest—9	**********	31
8	**********	14
7	**********	24
6	**********	43
Median—5	**********	46
4	**********	10
3	***	3
2	*	1
Lowest —1	*	1
	Grand total	173

Score	Distribution of scores of 163 Italians (Each star indicates an individual score)	Totals
Highest—9	*	1
8	*	1
7	***	3
6	**********	10
Median—5	**********	33
4	**********	39
3	**********	30
2	**********	28
Lowest —1	**********	18
	Grand total	163

TABLE VIII.—COMPARISON OF ACCOMPLISHMENT OP 173 AMEBICANS AND 163 ITALIANS IN THE *VA* GRADE, AS MEASURED BY THE LIPPINCOTT-CHAPMAN CLASSROOM PRODUCTS SURVEY TESTS

Reading Continuous Passage Test

Score	Distribution of scores of 173 Americans (Each star indicates an individual score)	Totals
Highest—9	**********	39
8	**********	27
7	**********	36
6	**********	24
Median—5	**********	24
4	****	4
3	********	8
2	****	4
Lowest —1	*******	7
	Grand total	173

Score	Distribution of scores of 163 Italians (Each star indicates an individual score)	Totals
Highest—9	**	2
8	***	3
7	**********	14
6	**********	14
Median—5	**********	48
4	**********	28
3	**********	18
2	**********	15
Lowest —1	**********	21
	Grand total	163

TABLE IX.—COMPARISON OF ACCOMPLISHMENT OP 173 AMERICANS AND 163 ITALIANS IN THE *VA* GRADE, AS MEASURED BY THE LIPPINCOTT-CHAPMAN CLASSROOM PRODUCTS SURVEY TESTS

Total Test Score

Score	Distribution of scores of 173 Americans (Each star indicates an individual score)	Totals
Highest—9	**********	51
8	**********	27
7	**********	31
6	**********	22
Median—5	**********	16
4	**********	16
3	*********	9
2	*	1
Lowest —1		0
	Grand total	173

Score	Distribution of scores of 163 Italians (Each star indicates an individual score)	Totals
Highest—9	****	4
8	***	3
7	********	8
6	**********	14
Median—5	**********	32
4	**********	37
3	**********	39
2	**********	19
Lowest —1	*******	7
	Grand total	163