

showing proficiency should be excused from drill whereas those showing particularly poor results should be placed in special drill classes.

The comparatively better showing of the "work" group and the poor showing of the "study" group would seem to indicate that the child who keeps his brain alert by meeting actual problems of life is in a better position to retain what he has learned than the one who plays or studies. The poor showing of the "study" group, however, may be partly explained by the fact that the studying group did not continue to the opening of school. The last four weeks of the vacation were spent in play by this group.

The great loss in efficiency of the "play" group would seem to point to the advisability of an all year school for the child. Whether this conclusion is justified, however, would depend upon the power for recovery shown by each group. This would have to be the subject of further tests.

MAURICE A. GARFINKEL.

Public School 9, The Bronx,  
New York City.

---

## A COMPARISON OF THE RESULTS OF GROUP TESTS AND THE POINT SCALE TEST

Every year mental measurements assume a greater importance in this country. As public school teachers come to have a scientific knowledge of applied psychology so that they can use psychological methods and understand and interpret the results of mental measurements, such measurements will come into general use. Hitherto the various adaptations of the Binet Scale have been used almost exclusively, in the practical diagnosis of subnormality. But the use of the Binet tests or any other individual tests for all the pupils of a school system is now, and perhaps always will be, an impossibility. However, careful annual testing of *all* the children in our schools is highly desirable. There is, therefore, a present demand for the extension, standardization, and perfection of group tests. If group tests give practically the same results, measure the same important functions, then there is no reason why they should not be used instead of the individual tests except in the case of the extreme variants, who should, of course, have a much more extensive examination than is possible with a few group tests.

The writers have undertaken a comparison of the results obtained by use of the Yerkes-Bridges Point Scale with the results obtained by the use of standardized group tests. The subjects were eighty public school children in grades four, five, and six. The Yerkes-Bridges tests were carefully given to the children dur-

ing the fall and winter of 1917-18. We began with the higher grade and proceeded to the lower. The group tests used were the seven mental tests standardized by one of the writers (W. H. P.).\* They were administered simultaneously to all the children of each grade. The individual tests were all given, and the results of all the group tests were graded by one of the writers (G. E. B.). Absolute uniformity was therefore secured in the grading and evaluation of the results. The correlation by the Pearson formula between group test rating and Point Scale rating was .619; P. E. .046. If instead of using the absolute marks of the pupils, we use their ranks and compute the correlation by the Spearman foot rule formula, we get  $R = .84$ .

The pupils of each of the three grades were then ranked on the basis of the teachers' judgments of their ability. The correlation between group test ranking and the teachers' ranking, obtained by the use of the Spearman Foot-Rule formula, were: fourth grade, .565; fifth grade, .71; sixth grade, .80. Correlations by use of the same formula between Point Scale ranking and teachers' ranking were: fourth grade, .42; fifth grade, .95; sixth grade, .655. The average correlation, therefore, between the group test ranking and teachers' ranking was .692; and the average correlation between Point Scale ranking and teachers' ranking was .675. These correlations are practically the same, that from group tests being .017 the higher. Therefore, whatever value inheres in the Binet Scale as a means of measuring intelligence, the same value inheres in the group tests. By every criterion that it was possible to apply, group test rating was found to be as accurate as Binet test rating.

If the raw correlation by the Pearson formula is .619 and by the Spearman formula .84, the true correlation between the two sets of measurements is probably near unity. Nor should it be surprising that such is the case, for the Binet tests, as well as the group tests, are merely measures of the various aspects of learning capacity, the efficiency of the associative processes, and the effectiveness of memory, that is to say, in both cases we are probably measuring the same mental functions. The only question is as to the most accurate method of measuring these functions. Our results seem to show that the group test method is as accurate as the individual test method.

The significance of this conclusion is, we think, great. When we further perfect and standardize our group tests, the teachers of our public schools will have at their command a fairly accurate method of measuring the mental development of their pupils. By combining the results of a series of group tests—tests that can be given in about an hour—the teacher can, within a few days after

\**The Examination of School Children*, The Macmillan Co., 1913. *Manual for the Mental and Physical Examination of School Children*, University of Missouri Extension Bulletin, No. 21, 1916. *The Science of Human Nature*, Silver, Burdett & Co., 1917.

the beginning of her term of school, have a fairly accurate measure of the native capacity of the children in her grade, and can rank them with reference to their ability as accurately as she can on the basis of a year's experience with them. Of course, we realize that a single measure of rote memory, logical memory, or learning capacity is no more—nor less—accurate than a single measure of jumping capacity, running capacity, or any other physical ability. However, if single measures of the various important mental functions are made and the results pooled, since each is to some extent a measure of general mental development or intelligence, their combined results have considerable validity. Moreover, the tests of the several mental functions can be repeated till, let us say, four of each have been given, at the expense of much less time and energy than could possibly be the case in the use of individual tests. By such repetitions we would not only have a fairly accurate measure of general intelligence by combining the results, but we would have a tolerably accurate measure of each of the several functions.

The accurate gradation of the pupils is of the highest importance not only to the school but to the tax payers who support the schools. In a recent survey of the mental development of the pupils of an entire school system (Webster Groves, Mo.) the children were found to be scattered through the grades with little reference to ability. The frequency surface of fourth grade ability was found actually to overlap to some extent the frequency surface of high school ability. From every point of view this great variation of ability in the same grade is highly undesirable. The school children should be put into small groups of fairly even ability, and each group allowed to proceed in its mastery of the work outlined in the course of study as fast as the group's ability warrants. It is not economical, even from the point of view of the tax payer, to have a pupil repeat a grade. Accurate gradation and proper methods of teaching will make such a thing as a repeater an impossibility. Pupils should not repeat grades, but pass through grades at various rates of progress depending upon ability.

Mental tests in the future will be found helpful in the work of accurate gradation on the basis of ability. This conclusion is no longer a mere theory or opinion, for numerous studies in this country and in England have shown beyond doubt the validity of mental measurements. The present study does, we hope, throw some light on the relative validity of group tests.

G. E. BREECE  
W. H. PYLE

University of Missouri.