

## XXIX. SOME CORRELATION BETWEEN MENTAL ABILITY, AND AGE AND GRADES FOR COLLEGE FRESHMEN

S. L. REED

Oklahoma A. and M. College

One of the most obvious facts that a teacher recognizes in the class room as well as in grading papers is that of individual differences. It is true that in our everyday standards we use the term average to cover a wide range of distribution of humanity,—a fact that, no doubt, is the basis of the statement made by Abraham Lincoln that God must have loved the common man because he made so many of them. But it must be remembered that when all traits or characteristics of an individual are taken into consideration, it will be found that in some of these he is born short, in others long and in still others indifferent. This is especially apparent in his physical make-up. Here science can come to the aid of common opinion and observation and measure precisely what these differences are and how they compare with those of the group. When, however, we come to a consideration of the mental and moral differences common opinion is not quite so certain nor is science as accommodating, and yet even here we make much the same practical, and sometimes odious, distinctions among our fellow men, and our convictions in the matter are quite as strong. The teacher who is in the habit of reducing these mental differences on paper in the form of examinations feels that he has perfectly good and tangible evidence that they exist.

Particularly is this true in our educational system of today. Not so many years ago only the 'promising lads' received an education, but now with compulsory attendance in our elementary schools and the prestige of the high school and college, education no longer has as strong a selective force as it did then; the result is that in many classes one discovers that the brightest students can satisfactorily accomplish six times as much as the dullest one. This makes our present educational system very difficult of administration. It will either mean a lowering of standards or, by raising standards, the operation of the law of the survival of the fit. Just now the college is becoming popularly fashionable. Many who enter have no further objective

than that they too like to belong. Our newspapers generally put a wrong emphasis upon college life and college aims. Extracurricular activities are made so attractive to the youth that the real object of a college education is often overlooked. If a student of educational institutions were to rely for his information solely upon newspaper items about them, his report would compare quite favorably to that of a pleasure resort. With this sort of gratuitous advertising, the college has a difficult task of dealing justly with those who come under her influence. College education has come to mean all things to all men. This has accentuated individual differences almost to the point where vocational and intellectual selection no longer operate. The college, consequently, is gradually recognizing that the selection of the student is almost as important as his training. It is quite as important to know who will profit by the various courses offered as to train those who are thus 'exposed'. Education is expensive, not only to the individual but to society as well; consequently it is important to make the sifting period short and do away with a great deal of needless effort, ultimate disillusionment and bitter disappointment. We will, of course, never know precisely the influence any course of training will exert on any man, be he brilliant or dull. In its ultimate analysis, human nature is always baffling and its points of contact are hard to evaluate. Just how any individual would differ with a college education from himself without such training can never be adequately determined.

And yet in spite of this difficulty, I think an analysis of grades would often help to determine what would be best for the student to do. Grades, however, are complex products and an analysis into the various factors that go to make them up is no simple matter. Grades are based on achievement or attainment and this is the result of many hidden factors that are hard to disengage. Theoretically, of course, it is easy to analyze the factors but when one tries to diagnose a concrete case to determine the number and relative influence of each factor, the problem becomes difficult unless one knows the educational and personal history of the case. Everyone will admit that mental ability is an important factor but almost any teacher will admit that it is not the only factor. Good talent is too often wasted because of lack of application. This point is strikingly emphasized by the saying that success is one-tenth genius and nine-tenths sweat. Important as these two factors are in the determination of attainment or achievement, previous training and methods

of study also influence the final results. Another factor that also unfortunately enters into the grades is the individual standard of the teacher. It is my purpose, however, only to consider the first two of these factors.

In harmony with testing activities in other colleges, we, at A. and M. College during the past four years, have been in the habit of giving intelligence tests to our students in psychology courses for the purpose of making students familiar with the tests and also for diagnostic purposes. In the fall quarter Dr. Patterson gave the Otis Self-Administering Tests to a hundred and five freshmen in the School of Education. The ease of administering and grading and the accuracy of the tests determined the selection. Two forms, A and B of the Higher Examination, were given. The correlation between these two tests was exceedingly high. In 87 cases the differences between the two scores of an individual did not exceed three points, and in 12 cases the scores were exactly the same. The correlation in all cases was 92 plus with a probable error of plus or minus 1. Whatever the tests measure, it must be admitted that they are consistent. In our experience these tests compare very favorably with our general impression of mental ability.

One interesting phase of this study was the relationship of scholarship to mental ability. The students were all ranked in the order of average grades and also in order of mental ability as determined by the tests. The results are what one could expect, a correlation of 44.2 with a probable error of plus or minus 5. There was some question in my mind as to whether it was fair to make a correlation of ability with average grades, since some students take more difficult courses than others, and furthermore some teachers grade more rigidly and by different standards. So a correlation was made with a compulsory education course taught and graded by one teacher. Part of the grade was determined by True and Fase Examinations. The results however were very similar to the average grade, namely, a correlation of 40.1 and probable error of 5. It will thus be seen that native ability is an important factor but not the only factor in the determination of a grade.

A correlation between age and intelligence, however, did not show anything positive. Mental ability slightly favored the older student, 6% positive correlation but since the probable error is 5%, no conclusions can be drawn. The same was true with reference to age and grade; age favored grades to the extent of 4.3% but this is less than the probable error.

Since age has very little to do with scholarship, and mental ability shows a rather low correlation, it will be seen that application is likely a very important factor. In fact, what little evidence we have about students who had to meet certain scholastic requirements, the evidence is quite convincing. Of eight students who were working for grades of above 85, six made a ranking in scholarship higher than one should expect from the mental tests. Another bit of evidence favoring application is the fact that boys as a rule held lower scholarship rankings than ability rankings, a fact that is generally recognized and interpreted as meaning that they are less conscientious than girls. If application operates independently of mental ability, then it follows that mental ability is not the only factor that determines whether a student will make good. We need not be predestinarian to be enthusiastic in mental tests. It is true that mental ability has its upper limits but in our colleges they are seldom ever reached. It ought to be safe to say, as college courses are now administered, that no student needs to fail unless he fails himself. It is true that a student of poor ability has to use more application and more determination, a thing that is often quite discouraging, but if he has grit and ambition to work he can make up this deficiency. It is quite likely that, between good ability and little application on the one hand and poor ability and indomitable energy and ambition on the other, the latter will make the greatest success in life. If it did not make too many invidious distinctions, it might be desirable to keep record of two grades, one grade in mental ability and another one for effort. Effort should certainly be rewarded for that is the only factor over which the student has control; and if grading should have any stimulating effect it should be right here. Perhaps a student of low ability but much determination and application should not receive a diploma but I do not believe we would do violence to standards by awarding him a certificate. This much is certain, the student with much ability and no application as well as the student with little ability and no application are no assets to a college. These are the two classes of students that, for the present, need to be eliminated and I am optimistic enough in the general trend of mental tests to believe that we may properly reward the one who really works for a college education and to discourage as soon as possible the one who just marks time.