



Social Sciences



A USE OF THE COEFFICIENT OF CORRELATION IN CURRICULUM REVISION

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As tests and measurements in Oklahoma is a requirement for the certification of teachers, all students who expect to teach must take the course. Perhaps all teachers in Oklahoma should be above average in ability and have a thorough knowledge of mathematics, but the present salary schedule for Oklahoma teachers has not brought about such an ideal condition. Even if six per cent of all students were failed in every course there would be students who would still have difficulty in learning the calculations in the average measurement book.

Although these statistical devices are necessary for any student who expects to major in measurements the average teacher does not actually use them after he or she has learned to make the calculations. For example, many students who have learned to calculate the standard deviation during a course are unable to find it three months after the course has been completed without a review of the statistical procedure.

Students below average in ability or students deficient in the fundamentals of elementary arithmetic frequently entered the writer's classes so emotionally disturbed about the statistics of the course that they could not learn anything without difficulty. Although the writer has frequent use for the statistical calculations taught in measurement courses, he found that he did not use them in his usual classroom grading. Hence the calculations of measurement classes were made as simple and as practical as possible to eliminate difficult mathematical processes and the necessity for following statistical formulae.

The calculations before and after they were revised were taught with complete and thorough explanations to students. The idea of the teaching method was to teach the calculations thoroughly in order that all students would be able to use them.

The teaching procedure assumed that provisions should be made for differences in ability. Provisions were made for individual differences by the amount of time given to explanations in order that all or most of the students would learn the calculations. Four times as much time was required before as after the revision of the calculations.

The psychological effect of the revision of the calculations on the reactions of the students in tests and measurements courses seemed to justify the curricular revision of the calculations. But the writer still desired to find the effect of the revision of the calculations on the rela-

tionships between scores on psychological examinations and grades on the calculations before and after the revision.

The coefficient of correlation between freshman and scores on the Ohio Psychological Examination and first semester freshman grade-averages of 504 freshmen for the 1935-1936 school year at Central State Teachers College was found to be $.527 \pm .0216$. Coefficients of correlation between intelligence-test scores and grade-averages usually range from .40 to .60.

A coefficient of correlation between psychological-examination scores and grades for 150 students in classes of the writer for the first semester of the 1935-1936 school year was found to be $.561 \pm .0378$. Two additional coefficients of correlation between psychological-examination scores and tests on statistical calculations, before and after a revision of the calculations, were determined. The coefficient of correlation before the revision in 1933-1934 was found to be $.406 \pm .0784$, while the coefficient of correlation after the revision of the calculations in 1935-1936 was found to be $.385 \pm .0619$.

The coefficient of correlation before the revision of the calculations is .10 or ten points lower than the coefficient of correlation for grades of all students during one term, while the coefficient of correlation after the revision of the calculations is .17 or seventeen points lower. These complete data are given in Table I.

These data seem to justify the conclusion that additional time and an allowance for individual differences do decrease the influence of intelligence on the grades of the students. Furthermore, a simplification of the calculations tends to lessen the influence of intelligence on grades.

TABLE I. Correlation between (1) psychological examination scores, (2) freshman averages, (3) grades of students in writer's classes, (4) tests on calculations before revision, (5) tests on calculations after revision.

| Variables | r | P. E. r | S. D. | S. D. | Mean* | Mean** | N. |
|-----------|--------|---------|-------|-------|-------|--------|-----|
| 1 2 | .527 ± | .0216 | 2.3 | .9 | 5.73 | 2.88 | 504 |
| 1 3 | .561 ± | .0378 | 2.9 | .9 | 5.99 | 3.30 | 150 |
| 1 4 | .460 ± | .0784 | 2.7 | 1.3 | 5.28 | 3.71 | 46 |
| 1 5 | .385 ± | .0619 | 2.9 | 1.1 | 6.24 | 3.72 | 86 |

*Psychological percentile scores are given in decile points.

**Grades were as follows: A = 5, B = 4, C = 3, D = 2, and F = 1.

The value of the statistical results of this study is limited by the number of cases, but the results are consistent with what was expected since the purpose of this revision was to make the calculations so simple that they could be taught to all students. However, the classes used were representative and there is no reason to believe a larger number of cases would materially affect the relationships.

