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Q and L Difference Scores on the A.C.E. Test

By MARTIN F. FRITZ

Those who have used the American Council on Education Psychological Examination (A.C.E.) will, no doubt, have noted that in a number of cases there is considerable difference between the Quantitative (Q) and the Linguistic (L) centile ranks. This report is concerned with an investigation to determine in a limited way, what significance there might be in the disparity of such scores.

In the fall of 1953, 2500 new students entered Iowa State College for whom scores on the A.C.E. were available. From this group, all cases were selected where the Q and the L centile ranks differed by 50 or more centiles and also for whom first quarter grade averages were obtainable. There were 221 such students. For comparison, another group was selected whose Q and L scores either were identical or differed by not more than 5 centiles. The size of this group was arbitrarily limited to the first 200 cases in the total alphabetical list, roughly about half of all such cases available.

The mean point-hour-ratio for the large-difference group (50 centiles or more) was 2.23 (A = 4, B = 3, C = 2, D = 1) and for the small-difference group (5 centiles or less) it was 2.15. Since the difference between these two grade averages is far below the usually accepted levels of statistical significance, it may be concluded that these groups did not differ in scholastic achievement during the first quarter of college work.

In the large-difference group, 108 had a higher Q than L score and their mean point-hour-ratio was 2.08. The remainder, 113, had a higher L score than Q and their mean point-hour-ratio was 2.38. This difference is significant well beyond the 1% level of confidence. This association of a high L score with a higher grade average does not seem to be a function of the curriculum, engineering, science, home economics, or agriculture, for the same trend was found when those in engineering and science (curricula involving mathematics) were treated separately.

The coefficient of correlation between the total A.C.E. scores and first quarter college grade average for the large-difference group was found to be 0.3667. The correlation for the small-difference group for the same variables was 0.6247. Even allowing for

the fact that the correlation, 0.3667, is probably an underestimation due to restriction in range—requiring a difference of 50 centiles or more would prevent the total scores from being either extremely high or extremely low—the two correlations are sufficiently different to suggest that when the Q and L scores are quite similar, scholastic predictions can be made with greater confidence than when a wide difference between Q and L is found. There is a further point. The correlation of 0.6247 is distinctly higher than those usually found and may mean that the lower correlations are caused, at least in part, by unlike Q and L scores. In other words, investigation might reveal that certain Q and L difference scores could well be removed from a distribution with improved prediction for the remaining A.C.E. scores.

To summarize, it was found that when the centile ranks on the Q and L sections of the A.C.E. were identical or highly similar, the correlation of total A.C.E. scores with first quarter college grade averages was 0.6247, considerably higher than that usually found. When the Q and L centile ranks differed greatly (50 centiles or more) the correlation was much lower 0.3667, although based upon a restricted range and therefore likely to be somewhat low. Students with a higher L than Q centile score had a significantly better grade average than those with the reverse, higher Q than L.

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