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Investigations concerning the effects of age upon mental ability commonly report that individual differences increase with age. (1, 2, 4) Further those authors who attempt an explanation of this increase generally attribute it to a differential gain or loss by initial ability level. Jones and Conrad (2) imply that increased variability with age of certain sub-tests of Alpha is attributable to a longer duration of growth for the more able than for the less able, and conversely that a decrease in variability is due to a longer duration of growth for the less able.

A later investigation by Foulds and Raven (1) embraces essentially the same explanation for the increased variability observed in mental test scores of engineers through age sixty.

In that the above mentioned investigations employed a cross-sectional approach, one disadvantage becomes apparent; i.e. the initial ability level of the older *S's* is known only by inference.

The foregoing discussion sets the problem of the present investigation, which is to educe some evidence as to whether age is, in fact, kinder to the initially more able than to the initially less able.

Method

The basic data for the present investigation are contained in a longitudinal investigation reported by Owens (3) in which 127 males who took Army Alpha form 6 as a college entrance examination in 1919 were retested during 1950. In this context it was reported that individual differences, as measured by the total score, were larger upon the second testing, during 1950, than upon the first, during 1919.

The present study was designed to determine whether or not this increase in variability is attributable to differential gains or losses by initial ability level. This problem was attacked by: (1) dividing the *S's* of the original study into quintile groups on the basis of initial total Alpha score, (2) testing the homogeneity of the mean difference scores (1950 score—1919 score) of the quintile groups with an analysis of variance.

Results

The results are summarized in Table 1.

Table 1

Mean Difference Scores by Quintile Groups

	Quintile Group I	II	III	IV	V
Raw Score	113	114-128	129-141	142-156	157
Number in Group	27	26	24	25	25
Mean Difference Score*	79.30	79.04	70.04	75.48	66.00

Difference Score (1950 score—1919 score) 58

The mean difference scores, when tested by an analysis of variance technique, were found to be homogeneous by initial ability level, in that the obtained F value of 3.34 was less than the critical value of 3.48 for the five percent level of significance.

Discussion

The homogeneity of the mean differnce scores for the various quintile groups indicates that differential gains or losses were not made by any of the groups. There are, however, two points which require comment.

First, the question as to the amount of restriction in range of initial test scores presents itself. If this group of S's were very homogeneous with respect to initial ability level, one would not expect to find differential gains or losses with respect to initial ability; however, such restriction does not seem to exist. The standard deviation of the present initial scores was approximately 27 with a range of 61 through 184, as compared to a standard deviation of 37.2 reported by Yerkes (5). It would appear from the above evidence that there is not a restriction in range sufficient to prohibit differential gains or losses from being detected if, they were, in fact, present.

The second point which requires comment concerns the effect of test ceiling on the difference scores of those S's with a high level of initial ability.

A test ceiling would prohibit, to a certain extent, an increase in those scores which were initially very high. Such an effect does appear to be operative, to a limited extent, in the present sample. Evidence of this might be suggested in the slightly lower mean difference score for the highest quintile group. However, it is extremely doubtful if this supposed ceiling effect is present in any of the other four groups. Hence, with the four remaining groups there is still no suggestion of a differential gain by those of greater initial ability. In fact, the contrary would be suggested by the data.

It is apparent then, that the gains and losses contributing to greater veriability on the second testing, 1950, are not distributed systematically among the levels of initial abilities. Rather, they would appear to be randomly distributed among all groups. Although no evidence is contained in the present investigation, it is suggested by the author that a factor such as physiological impairment, which is no great respector of intellectual ability, might will be operating throughout the range of initial abilities to depress the subsequent performance of some, while the performance of others, not so impaired, is unaffected. If, in actuality, such is the case, the increased variability on the second testing could be accounted for, as well as the apparent lack of differential gains or losses by initial ability level.

Conclusion

Within the limitations of the present data and methods, age *did not* appear to be kinder to the initially more able.

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