

1955

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Recommended Citation

McCoy, James E. and Fritz, Martin F. (1955) "Is Academic Survival in Engineering Related to Freshman Speed and Comprehension in Reading?," *Proceedings of the Iowa Academy of Science*, 62(1), 445-446. Available at: <https://scholarworks.uni.edu/pias/vol62/iss1/52>

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Is Academic Survival in Engineering Related to Freshman Speed and Comprehension in Reading?

By JAMES E. MCCOY and MARTIN F. FRITZ

The purpose of this study was to determine whether or not a relationship exists between Freshman speed and comprehension in reading and fourth year engineering matriculation over and above the contribution to be expected from the American Council on Education Psychological Examination (ACE). In other words, does a reading test contribute something to the prediction of engineering success not already found in the ACE?

The subjects of this study were 540 Freshman students enrolled in engineering at the Iowa State College in the fall of 1947. Students transferring from other colleges were not included. Survival was determined by checking the list against the 1951 winter quarter student directory and it was found that 129 were classified as fourth year engineering students, including six who had graduated earlier due to an accelerated program. It was assumed that reaching the fourth year was a measure of success in engineering and that there was considerable likelihood of graduation. Those not registered for fourth year engineering cannot all be considered academic failures although it is known that a considerable proportion had difficulty with the curriculum. Only 37 of the 411 were still in engineering but had not yet reached fourth year standing.

The statistical method used was analysis of variance with covariance adjustments and the F test as outlined by McNemar. Six comparisons were made between the survival and attrition groups, viz., three for speed of reading with Q, L, and Total scores on the ACE controlled and three for reading comprehension with Q, L, and Total scores on the ACE controlled. Standard T-scores (mean of 50 and standard deviation of 10) were used.

Reading ability was measured by the Iowa State College Silent Reading Test, Form A, 1946, which was constructed by the Testing Bureau in cooperation with the English Department. Norms were compiled from local usage.

The results of this study were uniformly consistent in failing to show that speed or comprehension in reading accounted for survival in the engineering curriculum. In none of the six comparisons was the F value great enough to be statistically significant even at the 5 percent level of confidence. It seems, then, that if we discount the effects of the ACE, reading as measured by the Iowa State College Silent Reading Test contributed little in predicting

whether or not an engineering student would remain in engineering and reach the fourth year.

It should be pointed out that the reading test used is literary in nature and that it might more appropriately measure the reading ability of liberal arts students. It is possible that an engineer does not need to read in the usual sense—a flowing, rapidly forward moving assimilation of words—but that he is operating more often on an analytically perceptual basis. Perhaps a reading test more appropriate for engineers could be devised. It is suggested that such a test would be technical in nature, using formulas and symbolic materials, perhaps less dependent upon a rich literary vocabulary, and with more dependence upon power than speed.

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