A CORRELATIONAL STUDY OF AN IQ TEST AND A READING TEST ADMINISTERED IN ELEMENTARY SCHOOL TO DETERMINE THEIR VALUE IN PREDICTING READING ACHIEVEMENT IN THE TENTH GRADE

BY

DIANNE MOODY SEXTON

A CORRELATIONAL STUDY OF AN IQ TEST AND A READING TEST ADMINISTERED IN ELEMENTARY SCHOOL TO DETERMINE THEIR VALUE IN PREDICTING READING ACHIEVEMENT IN THE TWELFTH GRADE

A Research Paper

Presented to

the Graduate Council of

Austin Peay State University

In Partial Fulfillment

of the Requirements for the Degree

Master of Arts

in Education

---

by

Dianne Moody Sexton

August 1975

To the Graduate Council:

I am submitting herewith a Research Paper written by Dianne Moody Sexton entitled "A Correlational Study of an IQ Test and a Reading Test Administered in Elementary School to Determine Their Value in Predicting Reading Achievement in the Twelfth Grade." I recommend that it be accepted in partial fulfillment of the requirements for the degree of Master of Arts in Education.

Garland E. Blair

Major Professor

Accepted for the Council:

Wayne E. Stamy

Dean of the Graduate School

TABLE OF CONTENTS

CHAPTER		PAGE
I.	INTRODUCTION TO THE PROBLEM	1
II.	STATEMENT OF THE PROBLEM	3
III.	REVIEW OF THE LITERATURE	4
IV.	PRESENTATION AND INTERPRETATION OF DATA	7
V.	SUMMARY AND CONCLUSIONS	9
REFERENCES	. . . . .	10

LIST OF TABLES

TABLE PAGE

I. Correlations 9

CHAPTER I

INTRODUCTION TO THE PROBLEM

The importance of the ability to read cannot be denied in the complex society of today, and it appears that the need for skill in reading grows continuously. Learning disabilities, or the selective inability of a child to learn reading, spelling, and arithmetic at the expected rate have been recognized as a problem in the schools for at least a century (Rice, 1970). Despite the recognition of this fact, modern day school specialists are unable tc find an answer to the complex problem of predicting and correcting reading failure. In the meantime the problem continues to grow. According to Rice (1970) the literature appears to suggest that somewhere between ten and thirty percent of the public school population evidence significant learning disabilities. This large segment of the school population could be viewed as "Specifically learning disabled," "minimally brain damaged," " language-learning deficient," "dyslexic," or any one of additional terms, depending upon the authority referred to, or the diagnostic proceedure used.

The vastness of the problem and the fact that it remains unsolved for so long would indicate that research in the area is needed. Reading difficulties need to be identified as early as possible in order that corrective proceedures may be undertaken, yet the problem of identification is not easily solved.

Critics have termed IQ tests as invalid, misleading, and based on false assumptions of human development (Zach, 1972). At the same time other measures for predicting reading success or failure are in doubt

as well. There are questions as to what reading tests actually measure and how performance on the tests is affected by social background and other variables.

There has been a considerable amount of research effort directed toward the problem of predicting reading failure. While some of these studies have yielded significant correlations between predictors and certain variables, the relationships have been weak, particularly when subjected to cross-validation procedures (Adelman and Feshbach, 1971).

Simpson (1970), concluded that individual reading tests surpass individual intelligence tests in ability to predict high school graduation. But, one of the advantages cited for the Wechsler scales is that they are minimally influenced by the subjects' ability to read. However, if the intelligence test is used as a predictor of success in school, and if reading ability is an increasingly crucial skill as one progresses through the grades, then the omission of the reading factor may reduce the predictive accuracy of the IQ test for school populations.

The conflicts and discrepancies in research findings reinforce the author's conclusion that there is a need for research in this area so that it may be determined whether reading tests or IQ tests are better predictors of future reading achievement.

CHAPTER II

STATEMENT OF THE PROBLEM

The purpose of this study was to examine a population of high school students in an attempt to determine how reading success or failure may best be predicted in the early years of the education of the student. The population used was the 1972-73 graduating class at Stewart County High School in Dover, Tennessee. The entire population was used except in cases where complete data were unavailable.

The study was a correlational study which considered two variables - IQ and reading test scores.

The null hypotheses were as follows:

1. That there is no significant relationship between the sixth grade IQ and the eighth grade reading test scores.

2. That there is no significant relationship between the sixth grade IQ and the twelfth grade reading test scores.

3. That there is no significant relationship between sixth grade reading test scores and twelfth grade reading test scores.

CHAPTER III

REVIEW OF THE LITERATURE

It is now recognized that there is not just one single factor involved in reading failure. Dechant (1971) says reading is not a single skill but is rather a group of many interrelated skills which must be applied simultaneously. According to Adelman and Feshback (1971), a youngster's success or failure in school is most fruitfully seen as a function of the interaction between his strengths, weaknesses, and limitations and the specific classroom situational factors he encounters.

Based on this assumption great care should be taken in identifying specific strengths and weaknesses in order that each individual may succeed rather than fail in our public education system. We can no longer be content to label those who cannot succeed and allow them to remain in a program which compounds their difficulties.

According to DeHirsch (1966), the use of intelligence tests for prediction of reading failure has been challenged on the ground that reading difficulties occur among children at virtually all intellectual levels. Rananauskas and Burrow (1973) concluded that reading disability should not be considered a phenomenon confined to those of average or above average IQ since there are good and poor readers at all levels of intellectual functioning. Kline (1969) stated that children with IQ's of 70 and above can readily be taught to read and that intelligence in itself is not a major factor.

Even though the problem of predicting reading success and failure has been studied widely and some trends are apparent there are still

conflicting findings in the literature. Gray (1960) found that coefficients that fall between .40 and .60 generally are reported between tests of intelligence and tests of reading achievement.

Keller, Croake, and Risenman (1973) found significant interaction between IQ and reading achievement for all groups involved in their study at all grade levels. Bond (1957) also said that reading achievement tends to be related to intelligence at all academic levels. Safer and Allen (1973) found that the single best predictor of reading improvement was verbal IQ.

However, Henderson (1973) found that if prediction of reading is the aim, then reading achievement tests were the most effective predictors. Simpson (1970) concluded that reading tests surpass individual intelligence tests in ability to predict graduation from regular high school classes for low achieving students. A report of the U.S. Commission on Civil Rights (1967) emphasized the use of reading test scores to assess academic progress. It stated that since achievement in other subjects depends strongly upon reading, tests of reading are a useful measure of academic progress (Jantz, 1974).

Intelligence is not the sole trait involved in complex reading and other language arts skills and habits (Lohnes, 1972). The results of numerous investigations have demonstrated that achievement and intelligence scores will rarely, if ever, be negatively correlated. Crano, Keeny, and Campbell (1972) assumed that the general relation between intelligance and achievement is both positive and substantial.

Nevertheless, reliance on intelligence tests has been challenged because (1) severe reading disabilities are known to occur at virtually all intellectual levels, (2) an IQ represents at best a global rather

than a differential evaluation of a child's potential, and (3) an IQ does not necessarily take into account important perceptomotor factors that are significant for reading success or failure (Keeney and Keeney, 1968).

CHAPTER IV

PRESENTATION AND INTERPRETATION OF DATA

Data were collected from the cumulative records of the students. These data included scores from the Lorge - Thorndike Verbal Intelligence Test administered in the sixth grade and the Gates - MacGinitie Reading Test which was administered in the eighth grade.

Other data included a twelfth grade score on the Gates - MacGinitie Reading Test which the author administered during the 1972-73 school year. The tests were obtained through the Tennessee State Testing and Evaluation Center and machine scored by that center.

The Gates - MacGinitie Reading test consists of the following subtests: Speed and accuracy, vocabulary, and comprehension. Scores from the comprehension subtest were used in the correlations. Complete data were available for a total of fifty-seven subjects.

The statistical procedures used were the Pearson Coefficient of Correlation and multiple correlation. All correlations were significant at the .05 level.

Table 1 gives the correlations of all the scores used. The highest correlation was with the Gates - MacGinitie twelfth grade comprehension score (.84). The Lorge - Thorndike Verbal IQ score and the twelfth grade Gates - MacGinitie comprehension score had a correlation of .77. The IQ and eighth grade Gates - MacGinitie score had a correlation of .76. The multiple correlation of the IQ and the eighth grade Gates - MacGinitie with the twelfth grade Gates - MacGinitie yielded an r of .86.

TABLE I

CORRELATIONS

Tests	r
IQ-$GMRT_8$	.76
IQ-$GMRT_{12}$	.77
$GMRT_8$-$GMRT_{12}$	.84

CHAPTER V

SUMMARY AND CONCLUSIONS

The major purpose of this study was to determine the value of the Lorge - Thorndike Verbal IQ and the Gates - MacGinitie Reading Test in predicting twelfth grade reading success as measured by the Gates - MacGinitie Reading Test. Fifty-seven students at Stewart County High School were used as subjects for the study.

Statistical findings revealed very high correlations between the IQ score and the Gates - MacGinitie scores at both eighth grade and twelfth grade levels (IQ to eighth GMRT .76; IQ to twelfth GMRT .77). However, there was an even stronger correlation between the two GMRT scores (.84). The multiple correlation was .86.

Results indicate that the best single predictor of reading performance is another reading test. However, the strong correlation with IQ shows that it too is a good predictor of twelfth grade reading success.

These findings would indicate that the best prediction of twelfth grade reading performance could be made when using a combination of IQ and reading test scores. Lavin (1965) reached a similar conclusion and stated that the best predictions of academic performance were made by using multiple variables.

REFERENCES

Adelman, S. & Feshback, S. Predicting reading failure: beyond the readiness model. Exceptional Children, 1971, 37, 349-354.

Bond, G. L., & Tinker, M. A. Reading difficulties, their diagnosis and correction. New York: Appleton - Century - Crofts, 1957.

Crano, W. D., Keeny, D. A., & Campbell, D. T. Does intelligence cause achievement?: a cross - lagged panel analysis. Journal of Educational Psychology, 1972, 63, 258-275.

Dechant, E. Diagnosis and remediation of reading disability. New York: Parker, 1971.

DeHirsch, K., Jansky, J. J., & Langford, W. S. Predicting reading failure, a preliminary study, New York: Harper & Row, 1966.

Gray, W. S. Reading. In C. W. Harris (Ed.), Encyclopedia of educational research. (3rd ed.) New York: MacMillan, 1960, 1086-1135.

Henderson, N. B., Fay, W. H., Lindeman, S. J., & Clarkson, Q. D. Will the IQ ban decrease the effectiveness of reading prediction? Journal of Educational Psychology, 1973, 65, 345-355.

Jantz, R. K. The effects of sex, race, IQ and SES on the reading scores of sixth graders for both levels and gains in performance. Psychology in the Schools, 1974, 11, 90-94.

Keeney, A. H. & Keeney, V. T. Dyslexia, diagnosis and treatment of reading disorders. St. Louis: Mosby, 1968.

Keller, J. F., Croake, J. W., & Risenman, C. Relationships among handedness, intelligence, sex, and reading achievement of school age children. Perceptual and Motor Skills, 1973, 37, 159-162.

Kline, C. Rebuttal. Journal of Learning Disabilities, 1969, 2, 57.

Lavin, D. E. The prediction of academic performance, a theoretical analysis and review of research. New York: Russell Sage Foundation, 1965.

Rananaskas, S. & Burrow, W. H. WISC profiles: above average and mentally retarded good and poor readers. Mental Retardation, 1973, 11(2), 12-14.

Rice, D. B. Learning disabilities: an investigation in two parts. Journal of Learning Disabilities, 1970, 3, 149-155.

Safer, D. J., & Allen, R. P. Factors associated with improvement in severe reading disability. Psychology in the Schools, 1973, 10, 110-118.

Simpson, R. L. Reading tests vs. intelligance tests as predictors of high school graduation. Psychology in the Schools, 1970, 7, 363-365.

Zach, L. The IQ debate. The Education Digest, 1972, 38, 6-9.