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The relationship between vocabularies, general and specific, and performance on specified tests

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THE RELATIONSHIP BETWEEN VOCABULARIES, GENERAL AND SPECIFIC, AND PERFORMANCE ON SPECIFIED TESTS

Submitted by

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CHAPTER I

THE PROBLEM

Purposeful teaching has striven to extend the development of enriched vocabularies, general and specific, on the part of our pupils. Purposeful teaching has stressed the obviously practical value of a meaning vocabulary. Without attaching clear, accurate meanings to words, the necessary means of interchanging ideas and of acquiring experiences fall into utter ineffectiveness.

Too often it is assumed that the experiences of most children are keeping pace with the vocabularies of all communicating facilities. Unfortunately, this assumption, if not removed, permits children to "read" words which are unfamiliar to them or about which they have vague or confused ideas. It is reasonable to acknowledge that few children hold a strong fascination for the efficacy of words, few seek dictionary help on their own initiative, and arrive at accurate word-meaning from context without directed assistance.

Investigators agree that the lack of clear, accurate meanings is inhibitory to mastering various kinds of information. Concomitantly, the success of school children is contingent upon their interpretation and employment of

words, upon a specific demonstration that word-mastery involved in the understanding of concepts has been achieved commensurate with their mental abilities.

THE PURPOSE OF THE PROBLEM

It is quite indisputable that many teachers hold the opinion that pupils are severely handicapped in school-subject achievement by lack of adequate general and specific vocabularies.

This study proposes to discover if there is/is not a relationship between the California Test of Mental Maturity (treating nonlanguage, language and "total factors" abilities) and the Cooperative Vocabulary Test (vocabularies involving reading comprehension and English fundamentals), and between the Michigan Vocabulary Profile Test (with its eight divisions of testing) and the Army General Classification Test (civilian form).

STATEMENT OF THE PROBLEM

This study proposes to determine the relationship between vocabulary scores and results on tests of reading, verbal mental ability, and non-verbal ability.

Within limits, the assumption that the testees have these general and specific vocabularies can be

held. The factors involved and the difficulties encountered in vocabulary growth are further assumed to be common to this group as they would be to any other given randomized group. The problem gravitates toward the significance or lack of significance of correlations established between specified tests and/or sections of specified tests.

This study may point to the need of teaching specific vocabulary in content subjects. It may also indicate the need of emphasizing the importance of general vocabulary in relation to intelligence test performance. If students do better on intelligence tests than they do in school subjects, it may be assumed on a purely a priori basis that teaching of vocabulary may equip the students to do better academic work.

BACKGROUND OF THE PROBLEM

A general vocabulary, according to Christ,[1] is one that conveys broadly inclusive ideas. An illustration of general words when the occasion calls for the expression of an inclusive idea may be found in "The Museum of Fine Arts has announced the purchase of

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1. Henry I. Christ. Winning Words, D. C. Heath and Company, Boston, 1948, p. 213

twenty-two paintings by American artists." A general vocabulary embraces that kind of word or expression that includes other words or expressions within itself. An example in point is the supposition that no word for tree existed in our language. Mention could be made of oak, maple, beech, and elm, but when it was desirable to give the general idea tree it could not be done. Included in a general vocabulary are those abstract words to refer to intangible relations; i.e., ideas that cannot be touched, smelled, tasted, heard, or seen.

Kilduff[1] defines a specific vocabulary as one that expresses ideas in a definite, restricted, or particularized manner, with its specificness often relative. An appropriate example is the expression an Italian, which is specific in comparison with a foreigner; and the expression a Neapolitan is specific in comparison with an Italian.

Of a general meaning vocabulary, Chambers[2] stresses a clear imperative for all teachers to acknowledge--that no concept comes to a child perfected, and in the light

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1. Edward Jones Kilduff. Words and Human Nature, Harper and Brothers, New York, 1941, p. 69

2. Will Grant Chambers. "How Words Get Meaning," Pedagogical Seminary, XI, (March 1904) p. 30-50

of this admonition, it is for the teacher, knowing how meanings grow, to discover the extent to which the content of the word is obscured for each child, and to devise means of bringing each word into clear vision and application.

The literature devoted to the special vocabulary concomitantly considered with content fields seems to indicate that meanings of words are acquired slowly as a rule, some are learned relatively early and others not until quite late. The character of the definitions attached to words changes conspicuously from the lower to the higher grades. Investigators are appalled at the lack among children of clear, accurate meanings of words. The development of such meanings is a moral imperative and a specific obligation of all teachers at all grade levels and in each field of study.

In a study to determine the relation of intelligence to general progress in reading and vocabulary growth, Leavell and Sterling[1] found that the more intelligent children do better in both areas than the

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1. Leavell, U. W. and Sterling, Helen. "A Comparison of Basic Factors in Reading Patterns with Intelligence," Peabody Journal of Education, (November, 1938), 16:149-55

less intelligent, thereby drawing the conclusion that there is a positive correlation ranking between .40 and .50 between general intelligence and achievement in these areas.

Arsenian,[1] following a study of the relation between bilingualism and mental development, concluded that bilingualism neither retards or accelerates mental development, and that language handicap is most likely the factor responsible for the discrepancy between the performances of bilingual and monoglot children on verbal tests of intelligence, with the discrepancy becoming negligible as the bilingual child becomes older and the level of his educational attainment grows higher.

Spoerl[2] investigated the relation between bilingualism and school achievement by equating two groups of college freshmen--bilingual and monoglot--as to age, sex, socio-economic status and intelligence, and compared, their performances on the Nelson-Denny Reading and the Purdue English Pacement tests, in addition to examining

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1. Arsenian, Seth. "Bilingualism in the Post-war World," Psychological Bulletin, Vol. 42, No. 2, (February, 1945), p. 73-74

2. Spoerl, D. T. "The Academic and Verbal Adjustment of College Age Bilingual Students," Journal of Genetic Psychology, (1944), 64, 129-157

their school grades and progress. This investigation was concluded with the suggestion that at least on the college freshman level bilingualism did not affect the students' expressive power as it was evidenced by their control of English, their almost equal vocabulary, their academic performance, and their results on a verbal test of intelligence.

Valentine[1] reported that rural children suffer a handicap in vocabulary tests (and in abstract words) owing to the fact that their environment is less literary than that of urban children. Urban superiority, concluded the investigator, may arise, not to verbalism of tests as such, but rather to the opportunities for special training regardless of the verbal or nonverbal nature of the material.

Thurstone[2] isolated verbal relations and fluency in dealing with words and found vocabulary to have a heavy loading in both these factors. The bulk of the evidence indicated that vocabulary correlated very

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1. Willard L. Valentine. Experimental Foundations of General Psychology, Rinehart and Company, Inc., New York, 1947, p. 126

2. L. L. Thurstone. "Primary Mental Abilities," Psychometric Monograph, (1938), No. 1, 121

highly with what has been identified as a primary mental element, verbal ability.

Terman[1] found that in 631 school children ranging from grade one to the first year in high school, vocabulary mental age based on the vocabulary list in the 1916 revision of the Stanford-Binet Test correlated .91 with mental age on the entire scale.

Wechsler[2] used the Bellevue Intelligence Scales and found that vocabulary correlated .85 with total score on the rest of the scale.

It is felt that due admission of tangible difficulties in expanding and enriching the vocabularies be made here to emphasize the need for scrupulous and persistent analyses by teachers of the instrumental causes of mistakes or difficulties encountered by youthful readers in attaching meanings to words.

Words that represent abstractions or generalizations, words that signify things with which pupils seldom come in

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1. L. M. Terman. "The Vocabulary Test as a Measure of Intelligence," Journal of Educational Psychology, (1918), 9, 452-466

2. David Wechsler. The Measurement of Adult Intelligence, The Williams and Wilkins Company, Baltimore, 1939, p. 101

contact, expressions that are mere localisms, the effect of words to call up specific meanings which may not be appropriate in some instances, lack of experience with a word, and failure to master its pronunciation and spelling--all these are prime factors that necessitate unstinted investigation on the part of all teachers of all subjects responsible for extending knowledge, understanding, and appreciation in our democratic state.

Apropos of this immediate consideration, the influence of context on general vocabulary deserves attention. Pupils are not so likely to be aware of limitations in general than in specific meanings. This situation is due in part to the fact that children are concerned only in a limited way with abstractions. Such meanings often fail as a rule to challenge the child's interest and to enlist critical evaluation. Furthermore, it is possible for him to ignore the meaning of many words such words as he reads, to base his interpretations on the meaning of familiar words in the selection, or to associate wrong meanings with general terms.

With regard to the influence of context on specific word meanings, it can be said that such a device as an appositional definition will not always insure adequate mastery on the part of all pupils. The need is urgent, there-

fore, for both group and individual guidance to help pupils acquire a clear, accurate understanding of essential meanings, develop power in using the context where it is of value in deriving meanings, recognize when the context does not aid in the acquisition of specific meanings, and develop the initiative and skills essential in finding the meanings of new words when they are not disclosed by the context.

Literature and studies related to problem and purpose of this thesis reflect the importance of vocabulary extension and training. Studies made by Edwards[1] through the use of a test comprising one hundred items showed that entering university freshmen do not have a sufficient mathematics vocabulary to understand all that might be expected of students doing work in courses in mathematics. The correlations found in his study give weight to the hypothesis that a considerable amount of difficulty in mathematics is due to lack of sufficient knowledge of the mathematical terms used.

Johnson[2] showed the importance of vocabulary-building

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1. A. S. Edwards. "A Mathematics Vocabulary Test and Some Results of an Examination of University Freshmen," Journal of Educational Psychology, XXVI, (December, 1936) 694-697

2. Harry C. Johnson. "The Effect of Instruction in Mathematics Vocabulary upon Problem Solving in Arithmetic," Journal of Educational Research (October, 1944) 38, 202

by conducting a specific study of the vocabulary in mathematics and observed a significant growth in the ability to solve problems using that vocabulary. Drake[1] found that with few exceptions the pupils in the vocabulary groups in the study of algebra achieved higher on the achievement tests than did the pupils in the control groups.

That meaning vocabulary of pupils can be greatly increased through training, Gray and Holmes[2] conducted a controlled experiment to determine the relative merits of incidental and specific training in increasing meaning vocabularies. Their results showed clearly the superiority of directed vocabulary study.

Tate[3] found that large gains in meaning vocabulary can be made in the upper grades in a half year and that a study of root words is very helpful in this connection. Traxler[4] demonstrated the fact that results of intensive training in

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1. Richard M. Drake. "The Effect of Teaching the Vocabulary of Algebra," Journal of Educational Research, (April, 1940) 601-610

2. William S. Gray and Eleanor Holmes. "The Development of Meaning Vocabularies in Reading," Publication of the Laboratory Schools No. 6 Chicago, (1938) 140

3. Harry L. Tate. "Two Experiments in Reading-Vocabulary Building," Modern Language Journal, (December, 1938) 23, 214-218

4. Arthur E. Traxler. "Improvement of Vocabulary through Drill," English Journal (H. S. Ed.), (June, 1938) 27, 491-494

Considerable publicity has been given to the results of studies considering the correlation between the size of a person's vocabulary and the degree of his success in the world. The chief value of an investigation conducted by Templeton[1] is not that it shows either the possibility or the need of foretelling a student's future by a vocabulary test. Its chief value lies in the indication that if a high school student is to achieve scholastic success when he goes to college, he should have a larger and better vocabulary than the vocabularies of most of the students who will be his classmates in his college.

Eurich[2] observed that by paying specific attention to vocabulary, an experimental group gained 14.1 words apiece on a given vocabulary test, while a control group, starting with about the same average, gained only 1.7 words on the same test. His conclusions were that students enlarge their vocabularies when attention is devoted to that end, and that the increase is not accomplished at the expense of lower achievement in the class where the vocabulary exercises take part of the time.

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1. William D. Templeton. "Vocabulary and Success in College," School and Society (February, 1940) 51, 221-224

2. Alvin C. Eurich. "Enlarging the Vocabularies of College Freshmen," English Journal (February 1932) 21, 135-141

Bernard,[1] using four sets of data, which included scores on a reading test, a vocabulary test, grade-point-average, and psychological rating, arrived at some pertinent findings. His investigation showed that the coefficient of correlation between grade-point-average and psychological rating was found to be .46 ± .046 and that the coefficient of correlation between the score on reading and grade-point-average was .44 ± .047. He concluded, for the group tested, that the score on the reading test is the basis for just about as good a prediction of potential scholarship as was the psychological test. The most significant finding, however, was the coefficient of correlation between grade-point-average with either of the other two tests. For the particular group tested, then, Bernard concluded that vocabulary test scores were a better device for the prediction of college success than was either the psychological rating or reading ability.

In summary, the vocabulary studies referred to seem to indicate some significant implications. Such findings as the size of a person's vocabulary may be used as a measure of success, attention to the vocabulary of a par-

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1. Harold W. Bernard. "Some Relations of Vocabulary to Scholarship," School and Society (April, 1940) 51, 494-496

ticular subject is definitely related to marks in that subject, and vocabulary scores correlate higher with school success than do psychological ratings seem to indicate that a more adequate vocabulary will broaden our pupils' concepts in such a way as to improve the quality of their thinking and that teachers should consider the advisability of giving more specific attention to vocabulary instead of trusting that development will be achieved through concomitant learnings.

CHAPTER II

PROCEDURE

POPULATION

This study was conducted at Bartlett High School, located in Webster, Massachusetts. Webster is an industrial town of approximately 14,000 population. The people for the most part are in the middle income classification. A bilingual situation predominates, with Polish and French the languages involved.

The population of the study consisted of the entire senior class of one hundred and twenty-two pupils: sixty-two girls and sixty boys. These pupils, arranged homogeneously, represented college preparatory, commercial, and practical arts courses.

PROGRAM OF TESTING

Four tests were administered: Cooperative Vocabulary, Michigan Vocabulary Profile, A G C T, and the California Test of Mental Maturity. All tests were personally administered, with the exception of the mental maturity test, which was administered by the guidance director.

The California Test of Mental Maturity was administered during the week of November 17, 1947. Language, nonlanguage, and total factors scores were obtained.

During the week of January 19, 1948 the Cooperative Vocabulary Test was administered and scores obtained.

The Michigan Vocabulary Profile Test, Form A H, was administered during the week of February 2, 1948, and scores on each of the eight divisions and total raw scores were obtained.

During the week of February 19, 1948 the Army General Classification Test, First Civilian Edition,[1] was administered.

STATISTICAL PROCEDURE

The data needed were as follows:

Total scores on the Michigan Vocabulary Profile Test

Scores on each of the eight divisions of the Michigan Vocabulary Profile Test

Scores on the California Test of Mental Maturity (non-language, language, total factors)

Scores on the Cooperative Vocabulary Test

Scores on the Army General Classification Test (civilian form)

The study now moved to determine the presence or lack of relationship existing in the factors measured by this study by calculating product-moment coefficients of corre-

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1. For the sake of convenience, the Army General Classification Test, First Civilian Edition will be referred to as "A G C T".

lation for the following:

Michigan Vocabulary Profile and A G C T

Michigan Vocabulary Profile and Cooperative Vocabulary

Michigan Vocabulary Profile and California Test of Mental Maturity (nonlanguage)

Cooperative Vocabulary and A G C T

Cooperative Vocabulary and California Test of Mental Maturity (nonlanguage)

A G C T and California Test of Mental Maturity (nonlanguage)

Cooperative Vocabulary and California Test of Mental Maturity (language)

Michigan Vocabulary Profile and California Test of Mental Maturity (language)

A G C T and California Test of Mental Maturity (language)

Michigan Vocabulary Profile and California Test of Mental Maturity (total factors)

A G C T and California Test of Mental Maturity (total factors)

Cooperative Vocabulary and California Test of Mental Maturity (total factors)

Each of the eight sections of the Michigan Vocabulary

Profile and Cooperative Vocabulary, A G C T, and the California Test of Mental Maturity (nonlanguage, language, total factors)

A scattergram[1] and a correlation[2] table were set up for each correlation, deviations were taken from assumed means of the two distributions and a coefficient of correlation was calculated by the product-moment formula.[3]

The standard error of each product-moment correlation was calculated to determine their reliability.[4]

Critical ratios were then calculated[5] to show the significance of the relationships between each two factors correlated in this study.

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1. Arthur S. Otis. Otis Correlation Chart, World Book Company, Yonkers-on-Hudson, New York, 1922

2. Ibid.

3. Otis Correlation Chart.

$$r = \frac{\Sigma x y}{\sqrt{\Sigma x^2 \Sigma y^2}}$$

4. Charles C. Peters and Walter P. VanVoorhis. Statistical Procedures and their Mathematical Bases, McGraw Hill Company, Inc., New York, 1940, p. 152

$$\sigma r = \frac{1 - r^2}{\sqrt{N}}$$

5. J. P. Guilford. Psychometric Methods, McGraw Hill Company, Inc., New York, 1936, pp. 60-61

$$CR = \frac{r}{\sigma r}$$

CHAPTER III

PRESENTATION AND INTERPRETATION OF DATA

In order to facilitate reference and interpretation, the data are arranged in ten tables. [1-2]

MICHIGAN VOCABULARY PROFILE WITH AGCT, COOPERATIVE VOCABULARY, AND CALIFORNIA TEST OF MENTAL MATURITY (NONLANGUAGE)

TABLE I

COEFFICIENTS OF CORRELATION FOR MICHIGAN VOCABULARY PROFILE WITH COOPERATIVE VOCABULARY, AGCT, AND CALIFORNIA TEST OF MENTAL MATURITY (NONLANGUAGE)

Name of Test	Michigan Vocabulary Profile: Total Raw Scores		
	r	r	CR
Cooperative Vocabulary	.529	.066	8.02
A G C T	.409	.076	5.38
California Test of Mental Maturity (nonlanguage)	.321	.081	3.96

The critical ratios in Table I reveal significance at the .01 level, and, for 122 cases, coefficient correlation of .233 holds significance at the

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1. In all the tables presented in Chapter III, N equals 122.

2. Standard Deviations appear in Appendix A.

.01 level. [1-2]

Vocabulary is shown to have a significant place in this study in its relationship to Cooperative Vocabulary and A G C T, Table I. The lower correlation with the California Test of Mental Maturity (nonlanguage) is to be expected since this section contains no vocabulary.

COOPERATIVE VOCABULARY WITH MICHIGAN VOCABULARY PROFILE, AGCT, AND CALIFORNIA TEST OF MENTAL MATURITY (NONLANGUAGE)

TABLE II

COEFFICIENTS OF CORRELATION FOR COOPERATIVE VOCABULARY WITH MICHIGAN VOCABULARY PROFILE TEST, AGCT, AND CALIFORNIA TEST OF MENTAL MATURITY (NONLANGUAGE)

Name of Test	Cooperative Vocabulary r	r	CR
Michigan Vocabulary Profile Test (Total Raw Scores)	.529	.066	8.02
A G C T	.542	.064	8.47
California Test of Mental Maturity (nonlanguage)	.313	.082	3.82

An interesting feature of Table II is that the Michigan Vocabulary Profile correlates with Cooperative Vo-

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1. Allen L. Edwards. Statistical Analysis for Students in Psychology and Education, Rinehart and Company, Inc., New York, 1946. 330

2. Henry E. Garrett. Statistics in Psychology and Education, Longmans, Green and Company, New York, 1947. 201-204

cabulary and A G C T at the .01 level of significance, thereby indicating that the areas represented in the sections of the Michigan Vocabulary Profile are of considerably more importance in measuring reading ability than general mental ability.

That the nonlanguage section of the California Test of Mental Maturity does not correlate equally with Cooperative Vocabulary comes as no surprise since vocabulary is a verbal ability. The correlation manifested could indicate that skill in vocabulary does include the non-verbal ability of recognizing relationships.

AGCT WITH MICHIGAN VOCABULARY PROFILE, COOPERATIVE VOCABULARY, AND CALIFORNIA TEST OF MENTAL MATURITY (NONLANGUAGE)

TABLE III

COEFFICIENTS OF CORRELATION FOR AGCT WITH MICHIGAN VOCABULARY PROFILE, COOPERATIVE VOCABULARY, AND CALIFORNIA TEST OF MENTAL MATURITY (NONLANGUAGE)

Name of Test	A G C T		
	r	σr	CR
Michigan Vocabulary Profile: Total Raw Scores	.409	.076	5.38
Cooperative Vocabulary	.542	.064	8.47
California Test of Mental Maturity (Nonlanguage)	.541	.072	7.51

The correlations of A G C T with Michigan Vocabu-

lary Profile and Cooperative Vocabulary, Table III, at the .01 level of significance, indicate that vocabulary has a marked relationship to mental ability.

Non-verbal ability as shown by the California Test of Mental Maturity (nonlanguage) has a slighter relationship to A G C T, which is somewhat surprising since the arithmetic and block-counting sections of A G C T would indicate the need of non-verbal ability.

MICHIGAN VOCABULARY PROFILE WITH COOPERATIVE VOCABULARY, AGCT, AND CALIFORNIA TEST OF MENTAL MATURITY (LANGUAGE)

TABLE IV

COEFFICIENTS OF CORRELATION FOR MICHIGAN VOCABULARY PROFILE WITH COOPERATIVE VOCABULARY, AGCT, AND CALIFORNIA TEST OF MENTAL MATURITY (LANGUAGE)

Name of Test	Michigan Vocabulary Profile: Total Raw Scores		
	r	σr	CR
Cooperative Vocabulary	.529	.066	8.02
A G C T	.409	.076	5.37
California Test of Mental Maturity (Language)	.538	.026	20.69

The correlations of the Michigan Vocabulary Profile with Cooperative Vocabulary and A G C T, Table IV, indicate that these vocabularies have a marked relationship to each other, and that the highly significant correla-

tion of the language section of the California Test of Mental Maturity emphasizes that vocabulary ability has considerable relationship to the mental-abilities factors as measured by A G C T and Michigan Vocabulary Profile.

COOPERATIVE VOCABULARY WITH MICHIGAN VOCABULARY PROFILE, AGCT, AND CALIFORNIA TEST OF MENTAL MATURITY (LANGUAGE)

TABLE V

COEFFICIENTS OF CORRELATION FOR COOPERATIVE VOCABULARY WITH MICHIGAN VOCABULARY PROFILE, AGCT, AND CALIFORNIA TEST OF MENTAL MATURITY (LANGUAGE)

Name of Test	Cooperative Vocabulary r	σr	CR
Michigan Vocabulary Profile (Total Raw Scores)	.529	.066	8.02
A G C T	.542	.064	8.47
California Test of Mental Maturity (Language)	.638	.054	11.81

The correlations of Cooperative Vocabulary with Michigan Vocabulary Profile and A G C T, Table V, indicate similar significance already mentioned, and the significance of the "language" correlation shows that vocabulary is considerably more related than is reading ability, involved in the Michigan Vocabulary Profile and A G C T tests.

AGCT WITH MICHIGAN VOCABULARY PROFILE, COOPERATIVE VOCABULARY, AND CALIFORNIA TEST OF MENTAL MATURITY (LANGUAGE)

TABLE VI

COEFFICIENTS OF CORRELATION FOR AGCT WITH MICHIGAN VOCABULARY PROFILE, COOPERATIVE VOCABULARY, AND CALIFORNIA TEST OF MENTAL MATURITY (LANGUAGE)

Name of Test	A G C T r	A G C T σr	CR
Michigan Vocabulary Profile (Total Raw Scores)	.409	.076	5.38
Cooperative Vocabulary	.542	.064	8.47
California Test of Mental Maturity (Language)	.358	.079	4.53

The significance of Table VI, showing correlations of A G C T with Michigan Vocabulary Profile and Cooperative Vocabulary, is expected, but the lower correlation with California Test of Mental Maturity (language) might indicate that the arithmetic and block-counting sections of A G C T were not of significance in this measurement.

Table VII, Michigan Vocabulary Profile with Cooperative Vocabulary, A G C T, and Total Factors of the California Test of Mental Maturity, Table VIII, Cooperative Vocabulary with Michigan Vocabulary Profile, A G C T, and Total Factors of the California Test of Mental Maturity, and Table IX, A G C T with Michigan Vocabulary

TABLE VII

COEFFICIENTS OF CORRELATION FOR MICHIGAN VOCABULARY PROFILE WITH COOPERATIVE VOCABULARY, AGCT, AND CALIFORNIA TEST OF MENTAL MATURITY (TOTAL FACTORS)

Name of Test	Michigan Vocabulary Profile (Total Raw Scores)		
	r	σr	CR
Cooperative Vocabulary	.529	.066	8.02
A G C T	.409	.076	5.38
California Test of Mental Maturity (Total Factors)	.569	.061	9.33

TABLE VIII

COEFFICIENTS OF CORRELATION FOR COOPERATIVE VOCABULARY WITH MICHIGAN VOCABULARY PROFILE, AGCT, AND CALIFORNIA TEST OF MENTAL MATURITY (TOTAL FACTORS)

Name of Test	Cooperative Vocabulary		
	r	σr	CR
Michigan Vocabulary Profile	.529	.066	8.02
A G C T	.542	.064	8.38
California Test of Mental Maturity (Total Factors)	.701	.027	25.97

Profile, Cooperative Vocabulary, and Total Factors of the California Test of Mental Maturity show significant correlations throughout, thereby establishing the relationship of vocabulary to these particular test performances.

Table X indicates the right sections of the Michi-

TABLE IX

COEFFICIENTS OF CORRELATION FOR AGCT WITH MICHIGAN VOCABULARY, COOPERATIVE VOCABULARY, AND CALIFORNIA TEST OF MENTAL MATURITY (TOTAL FACTORS)

Name of Test	A G C T r	A G C T σr	A G C T CR
Michigan Vocabulary Profile (Total Raw Scores)	.409	.076	5.38
Cooperative Vocabulary	.542	.064	8.47
California Test of Mental Maturity (Total Factors)	.596	.059	10.10

gan Vocabulary Profile with Cooperative Vocabulary, A G C T, and the nonlanguage, language, and total factors sections of the California Test of Mental Maturity. Save for fine arts and sports, there is correlation at the .01 level of significance with Cooperative Vocabulary.

The lack of correlation of A G C T with such sections as commerce, government, physical sciences, and fine arts poses the question of dire need of specific vocabulary training in these areas.

The lack of correlation at the .01 level of significance between the nonlanguage section of the California Test of Mental Maturity and the eight areas of the Michigan Vocabulary Profile Test, save for mathe-

matics and sports, indicates the imperativeness of training in the nonverbal ability of recognizing relationships.

The lack of correlation at the .01 level of significance between the language section of the California Test of Mental Maturity and the sections devoted to physical and biological sciences and fine arts would seem to indicate the need of specific vocabulary training and participation in those areas.

Again, the technical aspects of vocabulary is reflected in the lack of significance at the .01 level revealed for total factors and the physical and biological sciences and fine arts. This finding would seem to indicate specific vocabulary training in these sections.

TABLE X

COEFFICIENTS OF CORRELATION FOR EACH OF THE EIGHT DIVISIONS OF MICHIGAN VOCABULARY PROFILE WITH COOPERATIVE VOCABULARY, AGCT, AND CALIFORNIA TEST OF MENTAL MATURITY (NONLANGUAGE, LANGUAGE, TOTAL FACTORS)

Michigan Vocabulary Profile	Cooperative Vocabulary			A G C T			California Test of Mental Maturity: Nonlanguage			Language			Total Factors		
	r	σr	CR	r	σr	CR	r	σr	CR	r	σr	CR	r	σr	CR
Division 1 Human Relations	.514	.066	7.79	.305	.082	3.72	.073	.091	.802	.443	.073	6.07	.373	.087	4.29
Division 2 Commerce	.389	.076	5.12	.163	.067	2.43	.057	.091	.626	.321	.081	3.96	.671	.049	13.69
Division 3 Government	.395	.076	5.20	.211	.087	2.43	.140	.089	1.57	.462	.071	6.51	.378	.077	4.91
Division 4 Physical Sciences	.314	.082	3.83	.183	.060	3.05	.119	.091	1.31	.210	.087	2.41	.154	.089	1.73
Division 5 Biological Sciences	.297	.083	3.58	.279	.084	3.32	.136	.091	1.49	.213	.087	2.45	.088	.090	.978
Division 6 Mathematics	.323	.081	3.99	.499	.068	7.34	.288	.083	3.47	.339	.080	4.24	.451	.072	6.26
Division 7 Fine Arts	.207	.087	2.38	.239	.086	2.78	.149	.088	1.69	.181	.088	2.06	.061	.091	.670
Division 8 Sports	.196	.088	2.23	.371	.078	4.76	.302	.082	3.68	.239	.086	2.78	.325	.081	4.01
Total Raw Scores	.529	.066	8.02	.409	.076	5.38	.321	.081	3.96	.538	.026	20.7	.569	.061	9.33

CHAPTER IV

SUMMARY AND CONCLUSIONS

This study was pursued with the purpose of determining the relationship between vocabulary and performance on specified tests to indicate the need, if revealed, of stress upon more careful general and specific vocabulary training.

Four tests: Cooperative Vocabulary, Michigan Vocabulary Profile, A G C T, and California Test of Mental Maturity were administered to 122 twelfth grade pupils. Product-moment correlations were calculated between each of the test scores.

Summary of the data indicates that:

1. Vocabulary skill is a significant factor in verbal mental ability.

2. Vocabulary skill is not significantly related to non-verbal ability.

3. Vocabulary skill is significantly related to reading ability.

4. Lack of significant correlation in non-verbal ability demands encouragement since this factor embraces recognition of relationships.

IMPLICATIONS

Thorough vocabulary training cannot be overemphasized. It must be remembered, however, that such training of words in isolation cannot compare in value with stress of words that have life and meaning to the pupils in their past, present, and future social status as it is and as it should be. Since the pupil's mental pictures are visualized in terms of words, vocabulary then plays a strong part in the accurate formation and translation of those pictures which may spell for him the measure of success and mental ability the pupil has attained or may attain.

A sound, workable vocabulary is of primary importance in gaining ability to read skillfully. Therefore, skill in applying the correct meaning to the words read will not only make for greatest reading ability but for more enjoyment in reading as well. Moreover, reading will make for increased vocabulary while an extensive vocabulary will result in more intelligent reading.

LIMITATIONS

The following limitations exist in this study:

1. In an attempt to evaluate the relationship between vocabulary and test performance on specified tests, all possible factors contributing to success on the tests are not considered. Among those not considered are: caliber of teaching, interest, health, methods of study, and general adaptability.

2. Vocabulary alone is measured by the Cooperative Vocabulary Test. This test is an indication of whether an individual or class is below, at, or above the norms, but it does not reveal the areas or fields of experience in which the student or class does well or poorly.

3. The basic factor measured by the Michigan Vocabulary Profile Test is verbal ability, ability to understand words and ideas. Since studies indicate a relationship between technical vocabulary and preference, this test may be, in part, a measure of interest in given areas.

SUGGESTIONS FOR FURTHER STUDY

1. Pupils who are handicapped through low vocabulary skill need special guidance and such methods and devices as will help them in their vocabulary deficiencies.

2. For purposes of guidance, those pupils of low

mental ability who are doing well should be studied to determine if the cause of apparent success is a vocabulary skill. Specific findings might help other pupils of low mental ability.

3. Since this study has not shown the apparent importance of vocabulary to success on specified tests, but only a relationship of the students' general and specific vocabulary skill as it is related to success on specified tests, it would be of considerable interest to make a similar evaluation after conducting a study in which one group would receive special training in general and specific vocabulary while the control group proceeded with the incidental approach.

4. It would be of interest to conduct a follow-up study to find the relationship between vocabulary skill of these 122 seniors and types of positions held. As a guidance tool, this study could indicate the possible value of vocabulary in predicting work success in certain types of employment.

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APPENDIX A

STANDARD DEVIATIONS OF X AND Y VARIABLES

STANDARD DEVIATIONS OF THE X AND Y VARIABLES

Standard Deviations of the Y Variable		Standard Deviations of the X Variable				
Michigan Vocabulary Profile Test		CALIFORNIA TEST OF MENTAL MATURITY Non-Language	Language	Total Factors	Cooperative Vocabulary Test	AGCT: Total Raw Scores
Division 1						
Human Relations	5.70	4.86				
	5.56		9.12			
	5.70			11.55		
	5.74				8.72	
	5.72					15.85
Division 2						
Commerce	6.12	4.44				
	6.18		8.80			
	6.30			11.55		
	6.10				8.76	
	6.10					16.35
Division 3						
Government	3.14	4.80				
	3.14		8.64			
	3.18			11.55		
	3.12				8.76	
	3.14					15.85
Division 4						
Physical Sciences	3.93	4.86				
	3.96		8.88			
	3.93			11.55		
	3.96				8.76	
	4.05					15.85
Division 5						
Biological Sciences	3.14	4.82				
	3.16		8.80			
	3.14			11.55		
	3.16				8.76	
	3.13					15.90
Division 6						
Mathematics	4.98	4.82				
	5.01		8.92			
	5.01			11.55		
	4.92				8.76	
	3.92					15.85
Division 7						
Fine Arts	3.40	4.82				
	3.38		8.80			
	3.36			11.55		
	3.38				8.76	
	3.38					15.85
Division 8						
Sports	5.06	4.82				
	5.06		8.80			
	5.04			11.55		
	5.04				8.76	
	5.08					15.85
Total Raw Scores	25.40	4.82				
	16.80		8.80			
	16.30			11.35		
	16.20				8.76	
Cooperative						
Vocabulary Test	8.56	5.04				
	8.72		8.72			
	11.60			11.60		
AGCT: Total						
Raw Scores	16.35	4.82				
	13.10		8.14			
	15.80			11.55		
	15.85				8.76	
	16.20					16.30

APPENDIX B

GENERAL PURPOSE TABLE

GENERAL PURPOSE TABLE

Pupils' Names	A G C T Total Raw Scores	Michigan Vocabulary Profile Test									California Test of Mental Maturity			Coopera-tive Vocabulary
		Section 1 Human Relations	Section 2 Commerce	Section 3 Govern-ment	Section 4 Physical Sciences	Section 5 Biological Sciences	Section 6 Mathema-tics	Section 7 Fine Arts	Section 8 Sports	Total Scores	Non-Language	Language	Total Factors	
Ahern, H.	82	17	17	16	2	11	4	6	7	80	22	42	64	44
Angelo, L.	75	10	11	10	10	10	13	9	7	80	22	25	47	32
Bastek, B.	109	11	12	13	17	9	13	10	18	103	31	48	79	48
Bernier, B.	93	12	15	11	8	14	11	10	19	100	28	39	67	33
Bessette, J.	91	12	15	15	5	9	12	14	16	98	31	59	90	61
Borus, G.	85	11	6	11	9	8	10	5	13	73	28	30	58	30
Boutellette, L.	101	14	15	15	8	15	15	9	10	101	30	49	79	45
Brezniak, E.	101	13	13	15	6	17	17	10	14	105	24	47	71	41
Brzostek, I.	98	15	15	19	4	12	14	14	18	111	24	48	72	50
Budrow, A.	106	13	10	13	7	15	10	7	16	93	28	38	66	39
Bukowski, P.	100	17	12	18	10	9	12	18	9	105	28	54	82	52
Carroll, M.	84	12	10	10	6	15	9	8	8	78	24	44	64	39
Casey, J.	117	14	10	15	16	15	22	8	18	118	35	55	90	49
Ceminski, R.	80	10	13	18	10	14	13	7	16	101	29	40	69	39
Chaplain, W.	98	12	11	15	10	15	14	7	22	106	36	46	82	39
Choiniere, R.	107	15	8	12	11	14	20	9	14	103	31	55	86	51
Christopher, J.	110	14	12	16	15	16	25	4	23	125	34	51	85	47
Colburn, A.	127	9	13	9	5	14	20	13	10	93	37	60	97	54
Cournoyer, Paul	90	12	11	17	18	14	19	7	13	111	34	54	88	43
Counoyer, P.	103	16	17	15	14	12	15	10	17	116	27	56	83	57
Cozzens, A.	102	10	11	15	6	21	11	7	16	97	32	38	70	46
Crabbe, A.	94	7	11	8	6	13	14	6	6	71	30	33	63	36
Cusson, E.	85	13	9	12	7	17	6	8	7	79	31	41	72	44
Cyganiewicz, F.	88	10	13	11	9	10	17	4	12	86	27	37	64	23
Dahn, D.	114	15	15	20	6	15	15	10	14	110	33	53	86	54
Dalimonte, M.	58	9	9	8	5	13	6	6	7	63	18	34	52	33
Dauksz, C.	109	12	10	15	8	7	10	6	19	87	29	44	73	39
David, J.	90	9	8	14	8	12	8	7	9	75	23	32	55	29
Demers, G.	99	17	14	18	8	14	19	12	15	117	25	52	77	54
DiGiovanni, R.	106	15	9	8	8	15	14	12	20	101	36	47	83	37
Dojan, D.	121	12	7	10	11	14	24	6	23	107	34	50	84	47
Duszlak, L.	92	5	10	12	1	13	8	6	4	59	28	28	56	37
Dwyer, B.	100	15	9	7	11	14	10	10	6	82	26	37	63	43
Eddy, R.	70	8	7	15	4	9	6	4	6	59	24	43	67	25
Fish, H.	105	13	10	14	12	16	19	8	16	108	26	50	76	42
Fowler, E.	113	13	11	15	5	13	8	10	19	94	30	46	76	46
Gawle, E.	124	10	11	18	9	11	19	6	20	104	30	42	72	39
Genereux, J.	82	19	12	17	8	16	16	12	7	107	34	63	97	64
Geotis, J.	89	14	9	15	7	9	6	5	11	76	28	34	64	34
Girardin, T.	98	13	15	8	7	12	7	8	7	77	29	49	78	48
Goggin, W.	87	12	15	11	8	14	11	10	19	100	25	40	65	43

GENERAL PURPOSE TABLE (Continued)

Pupils' Names	A G C T Total Raw Scores	Michigan Vocabulary Profile Test									California Test of Mental Maturity			Cooperative Vocabulary
		Section 1 Human Relations	Section 2 Commerce	Section 3 Government	Section 4 Physical Sciences	Section 5 Biological Sciences	Section 6 Mathematics	Section 7 Fine Arts	Section 8 Sports	Total Scores	Non-Language	Language	Total Factors	
Golash, E.	90	19	15	12	7	15	8	10	17	103	22	41	63	44
Groncki, D.	111	17	14	16	6	12	12	15	4	96	36	68	104	64
Groth, B.	85	12	9	12	8	11	6	9	15	82	26	37	63	35
Grzyb, A.	81	14	11	17	8	16	10	10	12	98	25	44	69	41
Gunther, R.	82	14	8	10	9	8	7	8	23	87	31	42	73	43
Hucksom, L.	100	9	12	14	6	13	8	5	6	73	29	47	76	41
Ignatowicz, J.	50	8	8	10	9	11	9	8	12	75	27	36	63	31
Jezierski, V.	68	11	7	11	2	8	5	8	7	59	25	38	63	29
Johnson, G.	86	11	10	13	5	15	6	7	15	82	25	46	71	44
Johnson, J.	98	14	10	10	6	9	15	4	16	84	24	34	58	30
Katori, J.														
Kitka, A.	115	15	15	17	11	16	14	14	13	115	33	49	82	58
Knych, B.	97	11	11	18	7	12	13	17	18	107	30	39	69	43
Kokocinski, I.	90	11	11	12	0	11	14	11	15	85	32	40	72	40
Kolak, C.	93	11	8	16	5	6	12	5	15	78	28	42	70	39
Koska, J.	90	10	10	15	8	14	12	9	11	89	30	49	79	40
Kozlowski, T.	87	13	11	16	6	13	9	10	7	85	24	44	68	45
Krawczyk, A.	83	9	9	12	9	13	10	7	11	80	28	32	60	34
Kujawski, D.	94	14	10	19	8	12	10	6	8	87	27	50	77	41
Kwiatkowski, J.	102	13	12	10	10	10	12	7	20	94	36	51	87	38
Labonte, J.	98	7	7	11	6	9	15	7	7	69	31	44	75	47
Laprade, N.	68	9	9	15	6	8	10	15	17	79	31	41	72	41
Lavoie, N.	108	13	11	13	8	9	15	7	16	92	29	46	75	40
Lefebvre, S.	87	16	15	15	11	15	17	13	13	105	22	46	68	49
Lenard, S.	127	18	19	20	14	20	20	23	26	158	42	64	106	54
Lipnick, R.	70	17	9	13	5	16	14	7	8	89	25	43	68	44
Lonergan, J.	89	16	17	15	14	12	10	10	8	102	31	51	82	46
Lusignan, P.	104	13	10	14	1	6	17	2	17	80	29	59	88	41
Madura, B.	98	14	15	13	1	12	2	11	10	78	34	48	82	39
Mangan, M.	71	7	9	12	7	11	10	6	3	65	28	22	50	31
Markiewicz, W.	92	15	9	10	11	12	13	10	14	94	22	41	63	34
Martinson, J.	126	11	5	15	12	15	23	10	15	106	25	63	88	65
Meciak, D.	98	10	15	11	7	13	10	11	9	86	21	54	75	53
Mellen, P.	73	13	12	16	7	13	4	10	10	85	21	44	65	40
Menthopolis, M.	98	17	17	15	9	15	6	11	11	101	25	37	62	38
Mikoloczyk, M.	46	9	9	12	8	13	10	6	9	76	23	34	57	27
Murczycki, F.	93	13	12	13	6	15	4	15	12	90	28	47	75	43
Nadeau, A.	87	12	15	11	8	14	11	10	19	100	25	39	64	50
Okonski, D.	80	17	17	15	9	15	6	11	11	101	15	43	58	46
Olszta, W.	80	11	11	11	6	11	10	10	11	81	22	38	60	27
Orzech, D.	76	10	11	18	9	11	19	6	20	104	26	46	72	49

GENERAL PURPOSE TABLE (Continued)

Pupils' Names	A G C T Total Raw Scores	Michigan Vocabulary Profile Test									California Test of Mental Maturity			Coopera-tive Vocabulary
		Section 1 Human Relations	Section 2 Commerce	Section 3 Govern-ment	Section 4 Physical Sciences	Section 5 Biological Sciences	Section 6 Mathema-tics	Section 7 Fine Arts	Section 8 Sports	Total Scores	Non-Language	Language	Total Factors	
Ostrolokowicz, G.	58	11	12	11	10	14	15	11	7	91	29	37	66	36
Ozaniak, S.	60	13	14	16	10	14	10	10	14	101	28	37	65	27
Paprocki, D.	87	12	15	14	10	13	11	9	9	93	28	43	71	37
Patenaude, M.	110	17	13	16	8	14	9	10	9	96	30	48	78	45
Pelletier, B.	71	13	12	5	10	13	13	8	15	89	24	35	59	38
Penkala, W.	95	15	8	13	5	10	16	11	13	91	30	43	73	35
Placzyck, T.	69	11	13	18	6	9	11	7	6	81	16	47	63	41
Provencal, D.	80	7	15	13	15	18	13	12	11	104	31	49	80	36
Provencal, J.	92	15	15	15	4	18	17	20	17	121	33	51	84	39
Raszka, W.	110	14	9	9	11	11	21	9	20	104	29	55	84	46
Rohr, N.	102	9	13	14	7	15	16	7	11	92	18	44	62	41
Roukat, H.	102	13	11	15	7	8	20	4	13	91	28	47	75	41
Rouleau, J.	99	10	6	10	8	14	11	4	5	68	22	32	54	32
Rybacki, I.	61	13	7	14	8	13	12	9	12	88	18	43	61	36
Sabaj, R.	86	10	12	11	1	9	6	6	6	61	36	46	82	42
Scarglia, L.	95	14	13	17	11	18	13	7	8	101	34	55	89	43
Sokolowski, H.	110	12	15	15	5	9	5	6	8	75	36	55	91	48
Stafford, P.	111	17	16	13	5	16	10	11	11	99	31	65	96	65
Starosta, N.	87	14	13	11	6	12	11	10	13	90	29	55	84	46
St.Marie, L.	113	16	6	17	7	10	23	9	13	101	34	45	79	45
Stelmak, L.	112	16	15	13	2	10	11	7	9	83	27	42	69	46
Stolarczyk, L.	81	8	9	11	7	11	10	4	10	80	29	36	65	31
Suss, F.	101	16	17	21	15	21	12	11	22	135	25	60	85	56
Szcypien, H.	115	17	15	19	10	19	22	12	21	135	29	57	86	53
Szymczak, R.	121	12	7	10	26	21	14	15	20	126	31	53	84	44
Taylor, C.	94	14	8	10	11	16	10	8	20	100	33	33	66	39
Taylor, L.	117	16	17	16	18	14	21	14	16	132	30	58	88	48
Thomas, S.	101	12	14	11	11	12	13	7	22	102	33	38	71	31
Tobin, M.	81	15	7	15	3	13	15	7	13	88	27	47	74	44
Velarides, H.	108	16	12	17	10	13	22	9	11	110	33	62	95	53
Vengryn, P.	115	10	10	16	9	9	21	5	23	103	34	59	93	39
Vosburg, B.	85	13	13	17	5	14	10	10	9	91	25	47	72	44
Walkowiak, J.	67	13	8	9	8	8	14	12	13	84	25	42	67	32
Waterhouse, B.	102	13	11	9	10	11	18	10	6	88	20	45	65	45
Waters, N.	105	18	12	16	10	15	13	9	15	108	29	46	75	48
Wawryniak, N.	102	17	11	13	15	12	15	12	14	109	20	40	60	51
Yoyos, B.	100	11	8	16	10	14	10	8	8	85	23	35	53	29
Zdrock, D.	112	14	16	13	9	13	14	10	11	100	26	51	77	48
Ziaja, W.	103	11	7	10	14	11	17	7	15	92	30	45	75	43
Zukowski, E.	93	13	16	14	5	9	10	5	13	85	26	37	63	45