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## Vocabulary and Achievement in Developmental Psychology

Don C. Charles  
*Iowa State College*

John A. Bath  
*Iowa State College*

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## Vocabulary and Achievement in Developmental Psychology

By DON C. CHARLES and JOHN A. BATH

The purpose of this study was to determine the relationship between achievement in an introductory course in developmental psychology and knowledge of word-meanings in that area. It is a preliminary study, to be expanded as additional data are collected.

Several studies exist which show a significant relationship between general vocabulary and college grade-point average, usually the first term average. The studies of Bernard (1), Bolton (2), and Templeman (4) are typical. Levine (3) developed a psychological vocabulary test in analogy form at the University of Minnesota which is used for both selection and evaluation in graduate and undergraduate psychology classes there.

### PROCEDURE

#### Test

The original test was developed from a word-list of 150 items chosen from texts and lectures in developmental psychology. This word-list was given to students in such a course for short definitions in their own language. A multiple-choice vocabulary test was then constructed, using many of the student responses as distractors. The test was administered to similar classes the next term. This test was item-analyzed and a revised form was developed. In its final form, the test contained 100 multiple-choice items with four alternatives which covered the major subdivisions of developmental psychology. Students have been able to complete this test quite readily in a 50-minute class period.

#### Subjects

The subjects of this preliminary study were 85 students in a one-quarter, life-span developmental psychology course, who had taken one three-quarter-hour general psychology course previously.

#### Method

The vocabulary test was administered during the first week and again during the final week of the quarter. Achievement was measured in this course by two objective tests given during the term and a final test at the end of the term. A total of 240 items appeared in these tests. American Council on Education Psychological Examination test scores were available for all students.

Data were analyzed by correlational techniques among the various tests and measures.

RESULTS

The data are presented in three tables. Table 1 shows the mean scores on the various tests. It will be noted that a significant rise in score occurred between the initial vocabulary test (hereafter referred to as Vocabulary 1) and the retest (hereafter referred to as Vocabulary 2).

Table 1  
Mean Test Scores

Measure	Mean	S.D.
Vocabulary 1	47.09	10.66
Vocabulary 2	54.50	11.32
Difference, Vocabulary 1 and 2	7.41*	6.69
ACE total score	112.23	22.25
ACE L-score	67.53	15.17
Total Achievement score	157.09	15.51

\*Significant at .01 level

Table 2 shows zero-order correlations of the various tests. Vocabulary 1 has a slightly lower  $r$  with the achievement score than does either A.C.E. Total or A.C.E. Linguistic score, but all relationships are highly significant except the  $r$  between the Vocabulary 1 and 2 Difference score and Achievement.

Table 2  
Intercorrelations of Test Scores

Measure	Diff.				
	Vocab. 1	Vocab. 2	Vocab. 1 & 2	ACE T	ACE L
Vocabulary 1		.82*		.56*	.60*
Achievement	.45*		.06	.51*	.51*

\* $r$  significant at .01 level

In Table 3, partial and multiple correlations are presented. The partial  $r$  between Vocabulary 1 and Achievement is .24 with A.C.E. Total score held constant, and .21 with A.C.E. L-score held constant. These  $r$ s just miss being significant at the .01 level. The multiple  $R$ s are highly significant.

Table 3  
Partial and Multiple Correlations of Test Scores

Partial $r$	14.2 = .24*
	14.3 = .21*
Multiple $R$	4.12 = .55**
	4.13 = .54**

1=Vocabulary 1  
2=ACE Total Score  
3=ACE Linguistic Score  
4=Achievement Score  
\*Significant at .05 level  
\*\*Significant at .01 level

## DISCUSSION

The vocabulary test was developed originally out of the investigators' curiosity about the relationship between word knowledge and achievement in a given area, because word-understanding seemed to be a major problem among students who had difficulty in the class achievement tests.

The resulting test proved to be slightly less related to class achievement than was academic aptitude as measured by the A.C.E. test. The correlation coefficients found were of the same order as those found in studies of general vocabulary and general achievement (1, 2, 4). Levine's Psycho-Analogies combining intelligence and knowledge elements in one test, had a higher relationship to achievement ( $r=.69$ ) in one course (3). The Vocabulary 1 test retained a significant relationship (at the .05 level) when A.C.E. was held constant.

The multiple  $R$ s were significantly greater (at the .01 level) than the Vocabulary 1 test alone. The multiple was significantly greater (at the .05 level) than the A.C.E. Total alone, but just missed significance at this level when the L-score alone was used.

It appears that the vocabulary test in general tapped a verbal-knowledge-aptitude area like the A.C.E., but in addition had some independent contribution to make in judging aptitude or readiness to learn developmental psychology. However, since this independent contribution was of borderline significance, further research will be necessary to determine whether its use is warranted as a predictor of achievement. Since a significant gain in score occurred (without any attempt to teach vocabulary *per se*) it may prove to have future use as an evaluator of achievement.

A further study of the internal structure of the test will be made to determine whether sub-areas such as physical development, intellectual development, etc. will be revealed. If such factors exist the test might have use as a diagnostic device in the developmental area.

## SUMMARY

The purpose of this study was to determine the relationship between word knowledge and achievement in developmental psychology. A 100-item multiple choice test was constructed to measure knowledge of words used in the field. Test scores were related significantly to achievement in a one-term course. This relationship was still significant, but was at a lower level, when academic aptitude as measured by the A.C.E. was held constant. Further research will be necessary to test the value of the instrument for prediction, achievement evaluation and diagnosis.

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DEPARTMENT OF PSYCHOLOGY

IOWA STATE COLLEGE

AMES, IOWA