DOCUMENT RESUME

ED 036 396   RE 002 334

AUTHOR   CORLETT, DONNA JEAN
TITLE   A CORRELATIONAL ANALYSIS OF STUDY SKILLS AND
                ATTITUDES, LIBRARY SKILLS, AND READING SKILLS WITH
                THE ACADEMIC SUCCESS OF EDUCATION STUDENTS AT THE
                UNIVERSITY OF PORTLAND.
INSTITUTION   PORTLAND UNIV., OREG.
PUB DATE   MAY 69
NOTE   65P.

EDRS PRICE   EDRS PRICE MF-$0.50 HC-$3.35
DESCRIPTORS   ACADEMIC PERFORMANCE, *GRADE POINT AVERAGE, *LIBRARY
                SKILLS, *PREDICTIVE ABILITY (TESTING), PREDICTIVE
                MEASUREMENT, READING COMPREHENSION, READING SKILLS,
                SEX DIFFERENCES, STUDENT ATTITUDES, *STUDY HABITS,
                STUDY SKILLS, *VOCABULARY, VOCABULARY SKILLS

ABSTRACT
                A DOCTORAL STUDY WAS CONDUCTED ON THE RELATIONSHIP
OF STUDY SKILLS, EDUCATIONAL SPECIALIZATION, SEX, AND CLASS
MEMBERSHIP TO THE ACADEMIC STANDING ACHIEVED BY 57 EDUCATION STUDENTS
AT THE UNIVERSITY OF PORTLAND DURING THE FALL SEMESTER OF 1968. THE
BROWN-HOLTZMAN STUDY HABITS AND ATTITUDES TEST, THE NELSON-DENNY
READING TEST, AND THE LIBRARY ORIENTATION TEST WERE ADMINISTERED; AND
THE GRADE POINT AVERAGE FOR THE END OF THE FALL SEMESTER WAS THE
CRITERION USED FOR MULTIPLE REGRESSION ANALYSIS. FIVE VARIABLES USED
WERE SIGNIFICANT: (1) STUDY HABITS AND ATTITUDES, (2) LIBRARY SKILLS,
(3) VOCABULARY, (4) CLASS MEMBERSHIP, AND (5) READING COMPREHENSION.
SEX AND SPECIALIZATION IN ELEMENTARY OR PRIMARY EDUCATION WERE NOT
SIGNIFICANTLY CORRELATED. IT WAS CONCLUDED THAT THE SIGNIFICANT
FACTORS COULD BE USED TO PREDICT GRADE POINT AVERAGE ACHIEVEMENT.
SEVERAL HIGH CORRELATIONS BETWEEN VARIABLE FACTORS WERE FOUND. TABLES
AND A BIBLIOGRAPHY ARE INCLUDED. (BT)

A CORRELATIONAL ANALYSIS OF STUDY SKILLS AND ATTITUDES, LIBRARY SKILLS, AND READING SKILLS WITH THE ACADEMIC SUCCESS OF EDUCATION STUDENTS AT THE UNIVERSITY OF PORTLAND

Donna Jean Corlett, B. A. , M. Ed. , Ed. D.

Thesis supervised by Henry Baich

STATEMENT OF THE PROBLEM

The problem for this study was: What is the relationship of study skills and attitudes, reading skills, library skills, educational specialization, sex, and class membership to the academic standing achieved by education students during the fall semester of 1968?

METHOD USED

Fifty-seven students in the three classes of Social Foundations in Education were tested for this study. The tests administered to them were the Brown-Holtzman Study Habits and Attitudes, the Nelson-Denny Reading Test and the Library Orientation Test. The criterion was the grade-point average achieved at the end of the fall semester of 1968 when the students were tested. The design was multiple regression analysis. The variables used were the following:

X_1 reading vocabulary

X_2 reading comprehension

X_3 study habits and attitudes

X_4 library skills

X_5 education specialization of secondary or elementary teaching level

X_6 sex

X_7 class membership

FINDINGS

The results on the correlation tables showed that five variables were significant (a .05, 56 d. f. = .261). These five variables correlating with the criterion in the order of importance were study habits and attitudes, library skills, vocabulary, class membership and reading comprehension. Education specialization and sex were not significantly correlated. The study of the intercorrelations showed vocabulary highly correlated with SSHA, library skills and class. All of these were correlated with Y and suggest that their common factors of intelligence and verbal skill may have been operative. Comprehension correlated as might have been expected with vocabulary and library skills which would require a command of vocabulary. Study habits and attitudes, an inventory, correlated with library skills, another facet of study skills. Library skills had a significant correlation with

vocabulary, comprehension and SSHA. Education specialization indicated a relationship with the non-verbal variables of sex and class. An explanation might be that most men choose the secondary teaching level. Sex was correlated with education specialization and vocabulary and seemed to be a suppressant operating with vocabulary. The disproportion of males and females who are supposedly superior in verbal skills may be a factor. Class correlates with education teaching level and vocabulary. Possibly vocabulary could be expected to improve with student maturity.

The least squares method was used to obtain the values of the four variables used in the multiple regression equation. They were X_1 vocabulary, X_3 study skills, X_4 library skills and X_7 year in school. The weights of the variables were:

$$a_1 = -.00074 \quad a_3 = .026234 \quad a_4 = .02735 \quad a_7 = .10684$$

The value of C was .4612. Substituting these values the multiple regression equation was:

$$Y = -.00074X_1 + .02634X_3 + .02735X_4 + .10684X_7 + .4612$$

The F value of 14.568 with 4 and 52 degrees of freedom was significant beyond the .01 level. Therefore, the null hypothesis that GPA cannot be predicted by vocabulary, study skills, library skills and year in school must be rejected.

The R of .727 was significant less than the .01 level. The R corrected for bias was .708.

CONCLUSIONS

The null hypothesis for this study was rejected. Since five of the seven variables showed significant correlation with the criterion of GPA at the .05 level or less, further research is suggested as worthwhile with an N of at least 200. One-half of the group could be used for validation.

Such a design could include such variables as high school English grade-point. The dependent variables could be expanded to include listening and writing skills as one of the purposes of the study is to discover the skill deficiencies that could be remediated to achieve an improvement in academic success.

A CORRELATIONAL ANALYSIS OF STUDY SKILLS AND ATTITUDES,

LIBRARY SKILLS, AND READING SKILLS WITH THE

ACADEMIC SUCCESS OF EDUCATION STUDENTS

AT THE UNIVERSITY OF PORTLAND

DISSERTATION

SUBMITTED TO THE COMMITTEE

ON GRADUATE STUDIES

OF THE UNIVERSITY OF PORTLAND

IN PARTIAL FULFILLMENT

OF THE REQUIREMENTS

FOR THE DEGREE

DOCTOR OF EDUCATION

BY

DONNA JEAN CORLETT

MAY, 1969

APPROVED BY:

_____
DIRECTOR

_____
READER

_____
READER

ACKNOWLEDGMENT

The writer wishes to express appreciation to the University of Portland for the opportunity to complete graduate study. To her thesis adviser, Dr. Henry Baich, the writer offers sincere gratitude for his patient guidance and assistance, scholarly advice and constructive criticism. The writer wishes to thank Sister Berniece, Mrs. Ira Walsh and Dr. Gilbert Binnington for their cooperation in the testing of their education classes. Gratitude is also expressed to Dr. William Wilson, Dr Michael McCoy and Dr. Walter Read for their assistance in the computerizing of the data.

Finally the writer expresses her appreciation to her family for their encouragement and patient cooperation in this endeavor.

TABLE OF CONTENTS

LIST OF TABLES

A CORRELATIONAL ANALYSIS OF STUDY SKILLS AND ATTITUDES,

LIBRARY SKILLS, AND READING SKILLS WITH THE

ACADEMIC SUCCESS OF EDUCATION STUDENTS

AT THE UNIVERSITY OF PORTLAND

CHAPTER I

INTRODUCTION

The major task in high school and college education is to help
students develop the skills appropriate to the age in which they live.
The large amount of information and ideas supplied by mass communi-
cation of this era makes the selection of sources of these difficult.
(35:7) In this explosive age the very heart of the process of education
is learning to read. (35:62) The functions of reading skills needed are
the following: (1) to develop a semblance of balance of reading to the
content of vicarious experience; (2) to check upon the authenticity of
the content of television, radio and motion pictures; (3) to augment the
individual's self-respect; (4) to foster substantial human and social
values; (5) to facilitate exercise of language without which comprehen-
sion of verbal communication remains incomplete; (6) to preserve
mental health; (7) to round out personal interests. (34:7) Therefore,
one might define reading as an integration of concepts and attitudes

derived from reading with the reader's other experiences into a philosophy and a way of life. (36:86)

The need for remedial reading courses in college has been recognized since 1900 when education and psychology pioneers started reading improvement programs in cooperation with English departments. At this time more students moved into our schools and universities. They were no longer a select group of the academically talented, but a group with widely diversified backgrounds and abilities. They were poorly prepared for the demanding reading required of higher education curriculum. The survey of college reading programs in 1929 showed they had grown in number and size seeminly parallel to the size and number of the institutions. (36:75)

Other indications of the increased interests in college reading programs were shown by publication of the first reading journal devoted exclusively to them in 1948. During that year an organization devoted to college reading was formed. There was expanding acceptance of the programs because of the increasingly large amount of reading required of college students. (36:77)

The increase of available materials and equipment, such as the introduction of pacers in 1930 and speed films in 1940, as well as the development of appropriate tests for college reading levels has been equal to or greater than the need. Administration and faculty support has been positive.

In spite of these factors, college reading programs have developed more slowly since 1940 because of the lack of well trained persons in the field, the lack of inexpensive remedial material and tests, a need for valid and reliable methods of diagnosing reading difficulties and the lack of clear cut demonstrations that remedial programs really do improve reading difficulties. (8:7) There is agreement between colleges and their staffs, however, that a need for better reading skills is self-evident, and such surveys as Ketcham's, on reports from Pennsylvania colleges, further indicate that a reading program belongs in college. He reports that 94 per cent believed students were helped and half of those students were well above average. According to Chansky and Bergman the courses in the improvement of reading have been found not only to improve reading behavior but academic performance as well. (15:313)

One of the areas needing further exploration is the area of diagnostic measures of college reading skills that could lead to planning an appropriate remedial program tailored for correction of those deficiencies. This paper presents the following study in the area of diagnosis of college reading achievement.

I. THE PROBLEM

Importance of the study. This study explored study habits and attitudes, library skills, and reading skills of education students at the

University of Portland. It was preliminary to designing a college re-
medial program based on the individual needs and deficiencies of stu-
dents. This study also furnished significant data for designing an
improvement program of reading skills in the content areas in the
high school.

Statement of the problem. What is the relationship of study
skills and attitudes, library skills, reading skills, educational special-
ization, sex, and class membership to the academic standing achieved
by education students during the fall semester of 1968?

Assumptions.

1. That the tests selected to measure the reading, library
   skills, study habits and attitudes measure what they
   describe.

2. That the Survey of Study Habits and Attitudes inventory was
   presented in such a manner as to elicit honest answers
   from students.

Hypothesis. Grade-point average achievement cannot be pre-
dicted by one or more of the following measures: vocabulary, compre-
hension, library skills, study skills, class, sex, or educational
specialization.

Design of the study. This study used a multiple regression de-
sign including the coefficient of correlation and the F-test for
loss of significance. The criterion GPA was used and the variables
tested for best fit were vocabulary, comprehension, study habits and
attitudes, library skills, sex, class in school and educational speciali-
zation. The variable of rate which was originally planned in the battery
was dropped because several students forgot to mark this part of the
test. Also, other studies indicate that rate and the relationship to
comprehension and scholastic achievement is secondary. (42:9, 30:20)

The sampling for this study was the three classes of Social
Foundations in Education, a beginning course in the education program.
Only students who did not complete the testing were dropped from the
total sample. The final number of students was fifty-seven.

Two hours were taken for the testing during regularly scheduled
classes which was ample time for administering the tests. The neces-
sary time allotments were: Survey of Study Habits and Attitudes--30
minutes; Library Orientation--50 minutes; Nelson-Denny Reading
Test--30 minutes. These tests were scored by hand and the statistical
treatment of the data was done by computer.

Description of the tests. The Brown-Holtzman Survey of Study
Skills and Attitudes (SSHA) is an inventory designed to identify students
whose habits and attitudes result in poor learning. In addition, the

purpose of the test is to find the academic difficulties and serve as a basis to suggest ways of improving study habits and attitudes. It is recommended as a screening device, a diagnostic tool, a teaching aid and a research tool. It has a separate counseling key and can be used in beginning courses in psychology and education courses. In research, the total score of the SSHA may represent the study habits and attitudes variable in a research design. Responses to specific items may serve as checks or controls of some characteristics of the groups being studied. This test may be used to predict academic success. The correlation of scores and GPA's varied from .27 to .66 for men, and .26 to .65 for women. Reliability coefficients ranged from .79 to .95 for different groups and different methods. When used with the American Council of Education Psychological test (ACE) scores to predict the grades of college freshmen women, the coefficients were .53 to .61. The items in the test were chosen on the basis of student interviews and were empirically validated. (3:856, 2:688)

The Library Orientation Test for College Freshmen contains eighty items designed to measure library usage. It can also serve as a basis for college instruction in library use. The purposes of the test are to discover what areas and to what extent the college freshmen need instruction in using library resources, to enable them to recognize their deficiencies in the use of the library and to provide data that can be used as a basis for library instruction fitted to the needs of the

particular student group. The norms are based on over 4,000 students in fourteen colleges. The reliability was .86. The standard error of the individual scores was 4.2 raw score points. It was recommended that users compute their own group reliability coefficients and standard errors. (2:693)

The Nelson-Denny Reading Test can be used to measure rate, vocabulary and comprehension for grades nine through sixteen with a shortened time limit for use with adults. This test has two forms, A and B. It is commonly used in college reading clinics and high school reading programs. The rate section is a one minute timed section of the comprehension part. The vocabulary has 100 items and the comprehension has 36 items. It has been carefully constructed and is economical and convenient to administer. The alternate form reliability for rate, vocabulary and total were .92 to .93. For comprehension the reliability was .81 which is somewhat low for individual work. The standard errors are presented by tables for grade level. The standard error for grade nine on form A is 18.23 and for form B, 19.20. For grade sixteen the standard error for form A is 23.31 and form B is 23.70 for the total score. The manual explains their use. This test needs more data on predictive and concurrent validity because the few studies done using it with the English Cooperative Test and other tests have had too small a sample to be conclusive. Predictive accuracy would require data on the differential contribution of these

tests to a battery of tests as can be determined by multiple regression design. (3:800)

Limitations of the study.

1. The sample was limited to those students taking Social Foundations in Education in 1968.

2. Those students who did not complete the testing during the scheduled time were dropped from the study.

II. DEFINITION OF TERMS

Educational specialization refers to elementary or secondary teaching level as chosen by the student. Those students declaring no teaching level were dropped from the study.

Grade-point average was the grade-point average of the fall semester of 1968.

Library skills are those basic tools needed to use the library efficiently and effectively as measured by the Library Orientation Test.

Reading skills are vocabulary and comprehension as measured by the Nelson-Denny Reading Test.

Study habits and attitudes are those defined and measured by the Brown-Holtzman Survey of Study Habits and Attitudes Inventory (SSHA).

III. ORGANIZATION OF THE STUDY

In this study, the second chapter contains the review of litera-
ture divided into three parts: current trends and thinking in college
reading programs, studies using the three tests involved in the study,
and the results of college reading clinic studies. The third chapter
deals with the analysis of data in the statistical tables. The summary
of the findings, conclusions, and recommendations are written in
Chapter IV. This is followed by the bibliography and the appendix.

CHAPTER II

REVIEW OF THE LITERATURE

The literature reviewed, pertinent to this study, has been di-
vided into three parts.   The first part includes trends and thinking about
college reading programs.   The second is a review of studies using the
three tests involved in this thesis.   The last part enumerates some
studies on the results achieved by college reading clinics.

I.   CURRENT TRENDS IN COLLEGE READING

Educationists have stressed frequently in their published
writings the significance of a command of reading skills for
success in college academic work.   These expressions have
appeared in two forms--as research reports presenting find-
ings pertinent to the matter, and as theoretical statements of
educational philosophers and educational psychologists. (40:26)

The close relationship between general scholastic aptitude and
reading ability has long been recognized.   Examples of this relationship
include such evidence as the Stanford Binet Intelligence Test using
reading subtests and also the inclusion of the reading items on the
popularly used scholastic aptitude examinations like the ACE Psycho-
logical Examination and the Ohio State Psychological Test. (45:16)
According to Wheeler the studies of Williamson, Humber, Perixatto,
suggest that the reading may account for the low predictive value of the
ACE and other college aptitude tests.   (33:232) Students having high

native ability may be slow, methodical readers.

The two activities of college reading services are diagnosis and correction. Diagnosis reveals the causal factors and correction attempts to remediate the reading weakness. Correction is dependent to a large extent upon adequate diagnostic procedures. Ideally, the college remedial reading program would offer both individual diagnosis and individual corrective measures in order to develop systematic diagnostic procedures to provide the maximum effectiveness with economy of effort. (41:1)

Frances Triggs surveyed 305 colleges in 1942 to determine the number of existing reading programs. One hundred and eighty-five reported reading programs and seventy-three institutions were contemplating installing them for the fall term. (31:18) In another survey in 1949 Thelma Meyers located sixty-four college reading clinics, thirteen public school clinics and eight private clinics. (6:3)

Donald Moler gives as one reason for college reading difficulties, and hence the need for reading training, namely, the larger number of students attending the junior colleges where there is less selectivity operating. Also, because of the compulsory school attendance law more students complete high school and enroll in a college. (43:110) Another reason is, as Triggs points out, that school teachers, like many parents, are part of the great non-reading American public and that as a result practical training in developing mature reading

habits is not given. (31:2)

When students were surveyed as to their reasons for seeking help in reading, it was possible to make the following tabulation: 40 per cent sought help because of their own desires to improve their reading skills, 22 per cent were coerced by deans or counselors, 13 per cent because of language difficulties, 10 per cent to avoid courses, 5 per cent because of basic personality conflicts. (28:85)

Usually, poor readers seek help. But it should not be concluded that all poor students are poor readers and all good students are good readers. (25:199) The student who is a slow reader is likely to read little and without enjoyment. As a consequence, his textbooks have limited significance. (43:16) If his reading is poor in quality as well as slow he tends to fall into the habit of learning the words of the book which is the poorest of all methods of study. (7:3)

> It is generally accepted that with other factors equal, the student adept in the mastery of textbook information, that is, proficient in vocabulary, reading and study skills, has an academic advantage over the student who is deficient in this area. (44:12)

Anderson, Conant, Cowely and Eckert agreed with Douglas' proposal of qualifications required for academic success in today's university:

1. relatively large and precise vocabulary

2. skill in the use of many books, periodicals, and the use of the library in general

3. ability to express oneself fluently and precisely in oral and written language

4. study habits and skills, particularly those centering around problem solving, rapid reading, careful reading and note taking

5. a high degree of computational ability in arithmetic and simpler aspects of algebra

6. the development, presentation and expansion of strong and stable interests (45:13)

Among studies showing the relationship of reading and college achievement is the one by Reeves and Russell. This is an analysis of the freshmen who withdraw from the University mainly for scholastic difficulties. Of the forty-seven withdrawn, five had high reading ability, twenty were definitely in the low reading group and twenty-two had shown evidence of deficient reading ability on at least one of the reading tests. The results of this study clearly show a relationship between early withdrawals and reading difficulties. (26:144)

Lelwyn Breen in his study indicates that a student had about a fifty-fifty chance of obtaining a passing grade if he was below the mean for the various components of reading--vocabulary, speed and comprehension as measured by the comprehension part of the Cooperative English Test. Those who had high scores in reading (above the mean) had about a three to one chance of obtaining a grade average above a 2.0. (39:170)

Newell and Snoddy reported that of 193 entering freshmen who

took the reading test at the University of Washington in the winter of

1949, 74 per cent were found to be below beginning twelfth grade in

reading speed, 46 per cent were below the eighth grade. Of the 193

students, two read at a speed comparable to normal third grade level.

In comparison, 15 per cent were below the twelfth grade in comprehen-

sion, five were below the tenth grade, and the lowest two were at the

eighth grade level. (45:105)

Marjorie Geerlof's and Martin Kling's (4) survey gives a perti-

nent picture of current college practices in the reading training. They

emphasize books rather than machines and there was evidence of a

movement toward more individualized instruction, multiplicity of ma-

terials and a diversity of programs. All of these trends are reinforced

by research findings. However, not all programs were based on an

understanding that the factors which seemed to contribute most to read-

ing ability are intelligence, vocabulary, the ability to see verbal rela-

tionships and verbal perceptual fluency.

It is generally acknowledged that every type of word knowledge

has been shown to increase power and speed in reading. (4:3) However,

this factor was not used to emphasize vocabulary development in the

reading situations. While theory indicates that good and poor readers

require different methods of instruction, the practices reported in this

survey indicate that the same methods and materials are often used to

teach both good and poor readers. (4:4)

A study questionnaire sent to 336 colleges, universities and reading clinics showed some of the following patterns in reading programs. Most respondents reported that the organization of the programs was on a group basis while seventeen out of 190 reported some individualizing of the programs. The objectives of the course were ranked in the following order: comprehension, flexibility, rate, study skills, vocabulary, and "others", as reported by 172 institutions. An inability to differentiate the order of importance among the skills was reported by thirty-eight schools. A required course for those who failed to achieve satisfactory scores on entrance tests was reported by forty-two colleges. One quarter of a point to three credits were given. Most respondents indicated that participants were self-referred. Both pre- and post-tests as part of the program to measure improvement were given by 195 schools. Ranked by frequency of mention, these tests were: Nelson-Denny Reading Tests, Diagnostic Reading Test (DRT), Cooperative English Tests, Reading Comprehension, Iowa Silent Reading Test, California Reading Test and Davis Reading Tests. The median length for the programs was twenty-eight hours usually presented in units of one hour meetings twice a week.

The use of class time varied in the following ways: no lecture to 90 per cent lecture; no reading exercises to 100 per cent reading exercises; no use of reading machines to 80 per cent of the time on machines; and no other activities to 100 per cent of the time in "other"

activities. The "other" activities most frequently mentioned were counseling, individualized instruction, discussion, vocabulary drill, study skills training, films, laboratory application to textbooks and testing. No fee was charged in 114 institutions. When a fee was charged, amounts ranged from $3.00 to $125.00. Homework was required regularly by 110 schools. There are three typical course patterns. The course most commonly used was a short course (20 to 28 hours) of group instruction using a pre- and post-test to measure gains. Materials were one or more textbooks of reading passages and comprehension checks and one or more rate accelerating machines. Reading exercises were the prime activity with homework assigned regularly.

The second approach was the individualized program with diagnostic services available for planning long or short term training programs according to individual needs.

The third discernable pattern was a long course (40 hours to a full semester) of group instruction with individual attention given to those who needed it. A fee was charged and credit was sometimes given. Study skills, vocabulary development, critical reading ability, as well as rate and comprehension were stressed. Pre- and post-tests were administered.

A fourth category that this survey did not explore was the short term study skills programs. (4:20)

II.   REVIEW OF PERTINENT STUDIES

The Nelson-Denny Reading Test is a predictive, screening and broadly diagnostic instrument commonly used in college reading programs that appears to have been used very little in research designs. Schroeder did use the Cooperative English Reading Test, the Brown-Carlson Listening Comprehension Test and the Nelson-Denny Reading Test and predictors of scholastic success but found the Nelson-Denny to be of insignificant value. (36:276) Edgars found the Nelson-Denny to be a poor predictor in his study of academic achievement in college. (36: 277) Some small sample studies show this test to correlate positively with the English Cooperative and the Otis I. Q. Tests. More studies need to be designed including this test as part of a predictive battery of tests using a multiple regression design to establish more data concerning its value for prediction.

William Joyce (20) did a study using the Library Orientation Test that dealt with high scorers and low scorers among seventy-five teacher trainees. He arranged the individual scores on a nine-point normalized standard score scale with a median equal to five and a standard deviation of two. He found that a correlation of class rank and the library test was .41 with a "t" ratio of 3. 5181, a probability of less than .001 that the coefficient was greater than zero. (20:198-9) Morey Wantom says this library test is probably superior to informal tests constructed by librarians and provides information regarding areas in library skills and the extent to which college freshmen need instruction

in the use of library resources. (3:1144)

Ann Marie Curran's study on the "Non-Intellectual Character-
istics of Freshmen Underachievers, Normal Achievers and Over-
achievers" at the college level yielded significant differences at the .01
level in study habits and attitudes of the three groups, between both
sexes, and between all pairs by "t" test except those under-achieving
and normal achieving groups of men. Overachievers have better study
habits and attitudes. Achieving women have better study habits and
attitudes than under-achieving women. (17:2584)

Vincent Calia's (13) study at a Boston junior college dealt with
the problem of evaluating the effectiveness of multiple discriminant
techniques in the prediction of student membership in one of three
academic groups: failures, terminals, and transfers. In addition, he
hoped that factors responsible for scholastic success and failure would
be identified. The battery of tests he used were the Differential Apti-
tude Tests, Kuder Preference Record, SSHA, Jervis Self-Description·
Inventory, Otis Gamma, Form AM, Scholastic Aptitude Test, verbal
and mathematics scores and the Cooperative English Tests (C2 T). He
concluded that the student with verbal reasoning aptitude and creative
interests (literary and scientific) frequently sought help from teachers.
These students showed promise of achievement during the first semes-
ter and they were the ones most likely to attain status by the end of the
freshman year. (13:3190)

Brown did a study whereby the SSHA was found to be a significant predictor of grade-point averages for all groups, high, normal and low achievers. In the total group of males and in the lowest achieving mixed group the test was not a significant predictor. (37:7) Popham's study tended to confirm the value of the test when used with those two groups in college. (24:215) Gilbert Wrenn reported that SSHA used with the ACE test indicates an increase in the predictive efficiency over either instrument used singly. (2:783)

Another example of a study using this test and the ACE and grade-point averages with college freshmen women resulted in a weighted average coefficient which rose from .53 to .61 when the SSHA was added. (2:688) Anderson's study on the "Dimensions of the Characteristics Related to High and Low Achievement of a Selected Group of Negro College Students" concluded that there were significant differences between study habits and attitudes of high and low achieving groups as well as differences in sex groups, but not between dimensions of study habits and attitudes. (12:303)

Heilman points out that "today there is an almost universal respect for reading as a key to learning." (18:98) "Freshmen complain that they read too slowly; fail to comprehend what they read; and need more effective study procedures to meet the demands of a college curriculum." (18:99) To design and to implement a more effective college reading course requires specific data about student needs. The

use of the Survey of Study Habits and Attitudes, the Nelson-Denny Reading

Test and Library Orientation Test should provide that data. Further ex-

ploration of these three tests as predictors of grade-point attainment may

provide the necessary base for an individualized program at the college

level.

III. STUDIES DONE ON THE EFFECTS OF COLLEGE READING CLINICS

As early as 1931 Frances Robinson reported on a study entitled

"Can College Freshmen in the Lowest Tenth in Reading by Aided Scho-

lastically?" He made the following conclusions based on his study:

1. The lowest tenth of the students in reading achievement
   showed marked improvement in reading ability and school
   success.

2. The lowest tenth of the control students without training
   are mostly eliminated from college by the end of the year
   or continue as very poor students.

3. The intelligence and cooperation of the students in train-
   ing determine the amount of gain with training. There-
   fore those willing to work should be accepted first in
   clinics where the enrollment must be limited.

4. The clinical method is more efficient that a class method
   and should be used in remedying specific, individual
   reading difficulties. (27:846)

Shirle, Wedeem (31) did a study using the Nelson-Denny Reading

Test and the hrammel English Test. This was a voluntary six weeks

reading program at Brooklyn College. The remedial work included

reading and writing and a retesting at the end of two years to see if the

skills were maintained. The classes were non-credit, with a fee,

and they met three times a week. Two groups of eighteen were
matched on the basis of class and scores on the Total English Score of
the English Test of Achievement Battery. The short term training
group showed gains on the Nelson-Denny Test as .01 significance level
on rate, .19 on vocabulary and comprehension. The control group
measured .5 significance level on rate and a decrease of .6 on vocabu-
lary and a decrease of .4 on comprehension. On the long basis of two
years the trained skill improvements were maintained. The number
of the sample was too small to answer the question of effect on
academic grades. (31:37)

Richard Kammann's (21) study done at the University of Cin-
cinnati involved 209 freshmen in 1959-60. They volunteered for a
reading program of six weeks of training, eighteen hours total class
time for no credit. He computed product moment correlations between
pairs of variables, aptitude subtest, study habits, reading subtest of
both pre- and post-test nature. The instruments were the SAT, ACT,
SSHA and the DRT. He suggested that the general trends seemed to be
the following:

1. Study habits were not related to aptitude or to reading
   improvement.

2. Students high in aptitude or reading level (vocabulary
   and comprehension) did not improve in reading level.

3. None of the variables were related to improvement in
   reading rate.

4. Improvement in one reading skill did not contribute appreciably to improvement in any other reading skill. (21:85)

The results of a mandatory study course for freshmen done in the Bernard Baruch School of Business and Public Administration was reported by Feinberg, Long, and Rosenbeck. It was given in 1960 for two hours per week and with no credit. The groups were matched on sex, high school type, SAT verbal and mathematical scores. The measures at the end of the course were first semester grades, SSHA, Appel Personality Inventory, SAT verbal score and the Cooperative English Test C2-Reading. The statistical comparison of the groups showed no significant change in skills for the control or trained group. Some possible reasons were that a mandatory course for no credit built student resistance to learning and the final testing was on the last day of the term, making the students hostile and uncooperative. The above course did not increase the grade-point average. They concluded that the best results would be achieved when students recognized their own needs. They recommended a mandatory lecture with voluntary laboratory sections for a future experiment. (19:99)

At Cornell University Arthur McDonald (23) did an experiment involving a college reading program. An experimental and control group of students were used making a total of 116. The tests employed were the SAT, the Ohio State University Psychological Examination, and the Cooperative Reading Comprehension Test. The experimental

group exceeded the control group in GPA after training for the first semester, the first two semesters and for three consecutive semesters. The difference in GPA for the second and third semesters separately were not statistically significant. The control group made more grades below seventy in the first and second semesters. There were significantly fewer "drop outs" from college in the experimental group. (23:80)

Willey and Thomson (34) did a reading and grade-point improvement study with freshmen in the New Mexico College of Agriculture and Mechanical Arts. They used the Iowa Silent Reading Test and the American Council on Educational and Psychological Examination. They found that the remediated group showed about twice as much change in reading as the control group and the reading growth was significant at the .01 level of significance. The remedial group showed a gain in GPA over the control group at the .01 significance level. (34:35)

IV. SUMMARY OF THE LITERATURE

A review of the literature includes the following main points:

1. There is general agreement that the command of reading skills, vocabulary and study skills is important in the achievement of college academic success.

2. College students aware of their reading deficiencies are strongly motivated to seek help if it is available.

3. There is research evidence of a relationship between college reading ability and college grades.

4. There is a wide gap between reading theory and reading training in college clinics and there is no one pattern of training adhered to in the clinics.

5. There is little attempt to individualize reading training on this level.

6. The Nelson-Denny Reading Test commonly used in clinics needs to be included in predictive batteries to establish more data concerning its value to prediction.

7. The Library Orientation Test, although not widely used, is probably superior to informal library skills testing, but needs to be tested as a predictive instrument in relationship to achievement.

8. The SSHA inventory has been used more extensively in research designs than the other two tests and found to be a significant predictor of grade-point average.

9. Studies made of the effects of college reading training show measurable improvement of skills and indications of improved grade-point averages in some cases.

CHAPTER III

ANALYSIS OF DATA

In this chapter the Pearson product-moment correlations are analyzed for the variables of vocabulary, comprehension, study habits and attitudes, library skills, education teaching level, sex and class membership. The multiple regression equation is presented and discussed as part of the analysis of the data. The purpose of the analysis was to determine the variables, if any, that can be used to predict the grade-point achievement of education students at the University of Portland. These would indicate the deficient skill areas that could possibly be remediated to improve academic achievement. Such information could be used as a basis for designing an appropriate, efficient program of student correction.

I. SAMPLE AND VARIABLES STUDIED

Sample studied. The total sample for this study consisted of all students in the three classes of Social Foundations in Education who were present on the two days of testing. Effort was made by the tester to complete the testing of those who were absent However, this was not possible for some students. Consequently, although sixty-seven

students completed the tests it was necessary to drop ten because of missing observations in the data. Thus, fifty-seven students were used for the final tabulations of the data.

The proportion of males to females was eleven to forty-six. The distribution for class membership was 23 freshmen, 8 sophomores, 17 juniors and 9 seniors. Of the total sample of fifty-seven students, twenty-five had declared a teaching specialty of secondary level while thirty-two had chosen elementary teaching as their career choice.

Variables used. The criterion or independent variable used for this study was the GPA achieved for the fall semester of 1968 when the students were tested. The range of Y (GPA) was from 1.00 to 4.00, from a D average to a straight A average. Four students were below a 2.00 and therefore on probation at the end of this semester. Two students had achieved the top of the continuum.

In the development of the regression equation the students' actual GPA's (Y) to three significant figures were used. The raw score was used for the first four variables. The others were coded: elementary and secondary teaching level, 1 and 2; sex, female, 1 and male, 2; year in school, 1, 2, 3, and 4. The predictor or dependent variables tested for best fit were:

X_1 reading vocabulary

X_2 reading comprehension

X_3 study habits and attitudes

X_4 library skills

X_5 elementary or secondary teaching level

X_6 sex

X_7 year in school

The means, sum, squares and deviations for these variables may be found in Table 3, Appendix A.

II. ANALYSIS OF STATISTICAL TABLES

Analysis of correlation tables. The Pearson product-moment correlation used to ascertain the relationship between Y and the variables was computed by the usual formula. (9:78) The computations were done by the Honeywell 1200 computer at the University of Portland. With fifty-five degrees of freedom the correlations at the .05 level must be greater than .262 or lesser than -.262 to be significant, at the .01 level they must be greater than .339 or lesser than -.339 to be significant, at the .001 level they must be greater than .426 or lesser than -.426 to be significant.

Examination of Table 1, the zero order correlation matrix, reveals that X_3, study habits and attitudes, had the highest correlation of .6390 with the criterion. This agrees with the results of other investigators. (17:2584, 37:7, 13:215, 2:783) The implications might include that improvement in this area would result in higher academic

TABLE 1

MATRIX OF ZERO-ORDER INTERCORRELATION COEFFICIENTS

	Vocabulary X_1	Compre-hension X_2	SSHA X_3	Library X_4	Education Specialty X_5	Sex X_6	Class X_7	GPA Y
X_1	1.0000	.5920***	.4788***	.4763***	.2526	.0588	.3631**	.4304***
X_2	.5920***	0000	.1577	.2654*	.2036	.2111	.2341	.2702*
X_3	.4788***	.1577	1.0000	.3975**	.1862	-.0237	.2598	.6390***
X_4	.4763***	.2654*	.3976**	1.0000	.1679	-.1663	.1710	.5306***
X_5	.2526	.2036	.1862	.1679	1.0000	.4133**	.6034***	.2068
X_6	.05875	.2111	-.0236	-.1663	.4133**	1.0000	.1443	-.0995
X_7	.3631**	.2341	.2598	.1710	.6034***	.1443	1.0000	.3572**
Y	.4304***	.2702*	.6390***	.5306***	.2068	-.0995	.3572**	1.0000

N = 57

r(.05, 55 d.f.)= .262 *

r(.01, 55 d.f.)= .339**

r(.001, 55 d.f.) = .426***

achievement.

The second highest r of .5306 was X_4, library skills. The Library Orientation test used to measure this skill had not been used as part of a research design except in the study of Joyce where he found a probability of less than .001 that the coefficient was greater than zero. (20:198-9)

The next variable of importance was vocabulary, X_1, with an r of .4304. Previous statements in the literature validate the importance of word skill. (4:3)

Class membership, X_7, rated above the .01 level of significance with an r of .3572. This seems reasonable, as the better students tend to continue in college. They, also, probably improve their learning skills as they progress through more difficult curriculum.

Comprehension in reading, X_2, with an r of .2702 was significant at the .05 level. This predictor was dropped, however, from the regression equation as class membership, the last retained variable, was significant at only the 10 per cent level with an F of 3.25. The remaining two variables showed non-significant correlation with Y. They were X_5, education specialty, with an r of .2068 and sex, X_6, with an r of -.0995. The disproportionality of males to females may have been a factor in the low correlation, or perhaps education may draw men and women with the same ability. The null hypothesis that education specialization and sex cannot be used to predict grade-point average must

be accepted.

Analysis of intercorrelations. Examination of the intercorrelations of variables in Table 1 shows that X_1, vocabulary, has a significant correlation with comprehension with an r of .5920; SSHA of .4788; library skills of .4768 and with class of .3631. These were all significant with Y suggesting that the common factors of intelligence and verbal skill may have been operative in all of these variables. Comprehension skills, as measured by the Nelson–Denny Reading Test, showed a significant r with only vocabulary, library skills and grades that require a command of vocabulary. It may have been operating as a suppressant. A suppressant is a predictor that has a low correlation with the criterion but a high correlation with another predictor, having a high correlation with the criterion.

Study habits and attitudes correlated significantly .3976 with library skills. These were the highest predictors of GPA. The ability to find desired information in the library for writing papers or for expanding knowledge might be considered a study skill. Library skills indicate a significant correlation with vocabulary, comprehension, SSHA and grades. Education specialty indicates a relationship with the variables of sex and class. Most men currently enrolled in education choose the secondary teaching level and most women choose elementary which may be a partial explanation of the correlation with sex. Sex,

however, is correlated at a significant level with education specialty
and vocabulary. Sex may then be operating as a suppressant with
vocabulary. Here again the disproportion of males and females who
are supposedly superior in verbal skills may be a factor. Class cor-
relates with education specialty and vocabulary skills. Possibly vocab-
ulary could be expected to improve with student maturity.

II. ANALYSIS OF MULTIPLE REGRESSION

Determining the regression equation. Values of the four signi-
ficant variables X_1 vocabulary, X_3 study skills, X_4 library skills, and
X_7 year in school were found by the least squares method. According
to Table 2, the weights were:

$$a_1 = -.00074 \qquad a_3 = .02623 \qquad a_4 = .02735 \qquad a_7 = .10684$$

The constant or C value was .4612.

The basic multiple regression equation for prediction was:

$$Y = a_1 X_1 + a_3 X_3 + a_4 X_4 + a_7 X_7 + C \qquad (9:237)$$

The resulting equation being

$$Y = -.00074\, X_1 + .02623\, X_3 + .02735\, X_4 + .10684\, X_7 + .46124$$

In standard score form the equation can be written as

$$y = -.00074\, x_1 + .02623\, x_3 + .02735\, x_4 + .10684\, x_7$$

The relative contribution of the variables to the predicted variance was
then calculated by deviation form. The sums of the squares for the

TABLE 2

ANALYSIS OF MULTIPLE REGRESSION

Source of Variation	Degrees of Freedom	Sum of Squares	Mean Square
Regression	4	12.87936	3.21984
Residuals	52	11.49314	.22102
TOTAL	56	24.37250	

$$F_{(1, 3, 4, 7)} = \frac{\text{mean square regression}}{\text{mean square residuals}}$$

$$= \frac{3.21984}{.22102}$$

$$= 14.5680$$

Significant beyond the 1 per cent level (9:240)

$$R_{y(1, 3, 4, 7)} = \sqrt{\frac{\text{sum of squares regression}}{\text{total sum of squares}}}$$

$$= \sqrt{\frac{12.87930}{24.37250}}$$

$$= .727$$

Significant beyond the 1 per cent level (9:240)

$$\sigma_y = \sqrt{\text{residual mean square}}$$

$$= \sqrt{.22102}$$

$$= .46034 \quad (9:240-1)$$

above regression was 12.9. The various contributions of this variance

were determined from:

$$a_1 \Sigma x_1 y + a_3 \Sigma x_3 y + a_4 \Sigma x_4 y + a_7 \Sigma x_7 y \qquad (9:243)$$

$$(-.00074)(201.45) + (.02623)(279.65) + (.02735)(150.54) + (.10684)(15.12)$$

$$= -.149 + 7.34 + 4.12 + 1.62$$

Computation of the regression here gave 12.9. The contributions of

variance from the variables were:

vocabulary	=	.15
study habits and attitudes	=	7.34
library skills	=	4.11
year in school	=	1.62
total	=	13.22

Proportionate contributions of variance by the predictor variable

to the criterion variable was computed from the absolute values of the

contributed variance. The proportional contribution was:

$$\frac{|a_i x_i y|}{\Sigma |a_i x_i y|} \Sigma a_i x_i y \qquad (9:243)$$

Then the absolute value of the total variance was:

$$\Sigma |a_i x_i y|$$

$$.15 + 7.34 + 4.12 + 1.62 = 13.2$$

Then the proportional contribution of variance of each variable was:

vocabulary $\qquad \dfrac{.15}{13.22}(12.9) = .15$

study skills $\qquad \dfrac{7.34}{13.22}(12.9) = 7.2$

library skills $\qquad \dfrac{4.11}{13.22}(12.9) = 4.0$

year in school $\qquad \dfrac{1.62}{13.22}(12.9) = 1.6$

$$\overline{12.9} \qquad (9:243)$$

The percentage of contribution of each variable to the total predicted variance was:

vocabulary $\qquad \dfrac{.15}{12.9} \times 100 = 1.2$

study skills $\qquad \dfrac{7.2}{12.9} \times 100 = 55.5$

library skills $\qquad \dfrac{4.0}{12.9} \times 100 = 31.3$

year in school $\qquad \dfrac{1.58}{12.9} \times 100 = 12.2$

Examination of Table 2 shows that F is the ratio of regression mean square to residual mean square and is 14.568 with four and fifty-two degrees of freedom, significant beyond the 1 per cent level. Therefore, the null hypothesis that GPA cannot be predicted by vocabulary, study skills, library skills, and class membership must be rejected.

The multiple correlation coefficient. The multiple correlation coefficient for the four variables was computed by:

$$R_{y(1, 3, 4, 7)} = \sqrt{\frac{s. s. \text{ regression}}{s. s. \text{ total}}}$$

then

$$R_{y(1, 3, 4, 7)} = \sqrt{\frac{12.87936}{24.37250}}$$

$$R_{y(1, 3, 4, 7)} = .727 \qquad\qquad (9:240)$$

This is significant beyond the 1 per cent level. The correction of $R_{y(1, 3, 4, 7)}$ for bias is given by:

$$_cR^2 = 1 - (1 - R^2)\left(\frac{N - 1}{N - m}\right)$$

then

$$_cR^2 = 1 - (1 - .5285)\left(\frac{57 - 1}{57 - 4}\right)$$

$$_cR = .708 \qquad\qquad (5:401)$$

With correction R was still significant beyond the 1 per cent level.

The <u>standard</u> <u>error</u> <u>of</u> <u>the</u> <u>estimate</u>. The standard error of the estimate was calculated by:

$$\sigma_{(1, 3, 4, 7)} = \sqrt{m. s. \text{ residuals}}$$

then

$$\sigma_{(1, 3, 4, 7)} = \sqrt{.22102}$$

$$\sigma_{(1, 3, 4, 7)} = .460 \qquad\qquad (9:240)$$

Correction of the standard error for bias was:

$$\sigma_{c(1, 3, 4, 7)} = \sigma_{(1, 3, 4, 7)}\left(\frac{N - 1}{N - m}\right)$$

then

$$\sigma_{c(1,3,4,7)} = (.4603)(1.0566)$$

$$\sigma_{c(1,3,4,7)} = .4717 \qquad\qquad (5:401-2)$$

Therefore, 68 per cent of the obtained criterion scores would lie within $\pm .47$ points of the predicted criterion scores.

The standard error of R. The computation for the standard error of R was:

$$\sigma_R = \frac{1 - R^2}{\sqrt{N - m}}$$

then

$$\sigma_R = \frac{1 - .5285}{\sqrt{53}}$$

$$\sigma_R = .05735 \qquad\qquad (5:402)$$

Validation of the equation. The prediction equation was applied to the fifty-seven students in the study. The sum of Y for predicted GPA was 164.6740. The sum of Y for actual GPA was 164.7000. The difference between the sums was .0260.

$$\text{average error} = \frac{\Sigma \text{GPA expected} - \Sigma \text{GPA observed}}{N}$$

$$= \frac{.0260}{57}$$

$$= .00046$$

The average error indicates that the formula reported is probably

accurate since the average error is within the limits of rounding error if we assume ΣGPA expected - ΣGPA observed = 0.

This completes the analysis of data pertinent to the study and a discussion of the conclusions and implications drawn from these findings follows in the next chapter.

CHAPTER IV

SUMMARY AND CONCLUSIONS

Educationists have stressed the need for a command of reading skills to achieve academic success in college. Students have sought help to develop their reading skills in those schools that offer a reading clinic program. In some cases previously cited in this study there is evidence indicating a relationship between improved reading skills and improved academic performance. There exists a need to do a more effective and efficient job of individual diagnosing of specific reading skills to serve as a foundation for individualized training in a college reading clinic.

The purpose of this study was to investigate the areas of the four reading skills and study skills and their relationship to grade-point achievement in college. The questions raised were:

1. Does study skills and attitudes, vocabulary and comprehension skills, and library skills have a relationship to academic success?

2. Does sex, class and educational specialization have a relationship to grade-point average?

3. Do the above variables in combination have implications as predictors?

I. METHOD USED

Fifty-seven students in the three classes of Social Foundations in Education were tested for this study.   The tests administered to them were the Brown-Holtzman Study Habits and Attitudes, the Nelson–Denny Reading Test and the Library Orientation Test.   The criterion was the GPA achieved at the end of the fall semester of 1968 when the students were tested.   The design was multiple regression analysis which included obtaining the Pearson product-moment correlations and inter-correlations of the variables.   The variables tested were:

X_1 reading vocabulary

X_2 reading comprehension

X_3 study habits and attitudes

X_4 library skills

X_5 education specialization of secondary or elementary teaching

X_6 sex

X_7 class membership

II. FINDINGS

The results on the correlation tables showed that five variables were significant to the .05 level with fifty-six degrees of freedom with a correlation greater than .261 or lesser than -.261.   These five variables correlating with the criterion in the order of importance were

study habits and attitudes, library skills, vocabulary, class member-
ship and reading comprehension. Education specialization and sex
showed an insignificant correlation. The study of the intercorrelations
showed vocabulary highly correlated with SSHA, library skills and
class. All of these were correlated with Y and suggest that their com-
mon factors of intelligence and verbal skill may have been operative.
Comprehension correlated as might have been expected with vocabulary
and library skills which would require a command of vocabulary. Study
habits and attitudes, an inventory, correlated significantly with library
skills. These were the two highest predictors of grade-point and both
might be considered study skills. Library skills had a significant cor-
relation with vocabulary, comprehension, and SSHA. Education spe-
cialization indicated a relationship with the non-verbal variables of sex
and class. An explanation might be that most men choose the secondary
teaching level. Sex was correlated with education specialization and
vocabulary and seemed to be a suppressant operating with vocabulary.
The disproportion of males and females who are supposedly superior
in verbal skills may be a factor. Class correlates with education
teaching level and vocabulary. Possibly vocabulary could be expected
to improve with student maturity.

The least squares method was used to obtain the values of the
four variables used in the multiple regression equation. They were X_1
vocabulary, X_3 study skills, X_4 library skills and X_7 year in school.

The values were:

$$a_1 = -.00074 \quad a_3 = .02634 \quad a_4 = .02735 \quad a_7 = .10684$$

The value of C was .4612. Substituting these values the multiple regression equation was:

$$Y = -.00074X_1 + .02634X_3 + .02735X_4 + .10684X_7 + .4612$$

The F of 14.568 with four and fifty-two degrees of freedom was significant beyond the 1 per cent level. Therefore, the null hypothesis that GPA cannot be predicted by vocabulary, study skills, library skills and year in school must be rejected.

The R of .727 was significant beyond the 1 per cent level. The R corrected for bias was .708.

The corrected standard error of the estimate was .4717. The standard error of R was .057.

III. CONCLUSIONS

The null hypothesis that GPA cannot be predicted by vocabulary, study skills and attitudes, library skills and year in school was rejected. That GPA cannot be predicted by reading comprehension, education specialization, and sex must be accepted. However, since comprehension had a significant correlation with GPA at the 5 per cent level, further research might include this variable. Comprehension was also acting as a suppressant with vocabulary and the test used to measure comprehension may not be a good one. Because of the

disproportion of males to females in this study, future designs should include the variable of sex. It is possible that men and women choosing education have the same types of abilities.

The size of the sample was small because it was limited to education students in Social Foundations of Education classes and thus did not provide a check group.

Since vocabulary, SSHA, and library skills were correlated with the criterion as well as among themselves, verbal skill is probably a common factor in all three measures. Study habits and library skills were significantly correlated as well as being the two highest contributors to the regression variance and this indicates that library usage may be considered a valuable skill if one is to succeed in the freshman year. Teaching level showed a relationship with the non-verbal variables of sex and class membership. Most men choose the secondary teaching level. Sex seems to be operating as a suppressant with vocabulary. Class correlating with education specialty and vocabulary suggests that vocabulary could be expected to improve with student maturity.

IV. SUGGESTIONS FOR FURTHER RESEARCH

Further research should be designed with an N of at least 200 from the general freshman population. One half of the group is to be used as a check for the prediction equation. Such a design could include the high school honor points earned for English as it has been

found to be a significant predictor. If valid tests can be located, the dependent variables could be expanded to include listening and writing skills. One of main purposes of such a study is to discover the skill deficiencies that could be remediated to achieve an improvement in academic success.

Using the findings of this study a reading program could be effected using college texts as a basis for vocabulary and study skills development. Practical exercises in library use should be included in such classes. The multiple regression equation can be used as developed in this study to select students who, without some help, would probably fail. The control group could be a matched untrained group for checking the results and doing a simple chi square. The second semester work would be with those most likely to fail according to the equation. At the end of the semester the predicted could be matched with the observed scores. If this is successful, work could be done with interested professors to develop methods of study appropriate to their courses that would be helpful for the students enrolled in the courses.

Other uses of these findings could be to review the current tutorial program offered at the University of Portland. On the basis of findings, high schools need to ascertain their efforts to develop vocabulary, study skills and attitudes, and library skills; then to develop a stronger training in those areas. The implications for teacher training

are to prepare future teachers in sound methods of developing vocabu-

lary, study habits and library skills throughout the grades.

BIBLIOGRAPHY

BIBLIOGRAPHY

A. BOOKS

1. Buros, Oscar K. (ed.). The Fourth Mental Measurements Year-book. New Jersey: The Gryphon Press, 1953.

2. _____, The Fifth Mental Measurements Yearbook. New Jersey: The Gryphon Press, 1959.

3. _____. The Sixth Mental Measurements Yearbook. New Jersey: The Gryphon Press, 1965.

4. Geerlofs, Marjorie White, and Martin Kling. Current Practices in College and Adult Developmental Reading Programs. Delaware, New Jersey: International Reading Association, 1968.

5. Guilford, J. P. Fundamental Statistics in Psychology and Education. New York: McGraw-Hill Book Company, 1965.

6. Meyers, Thelma R. and Margaret L. Keyser. Survey of Reading Clinics. Iowa: Publications of the State University of Iowa, 1949.

7. Stroud, James B., and Robert B. Ammons. Improving Reading Ability, A Manual for College Students. New York: Appleton-Century-Crofts, Inc., 1949.

8. Triggs, Frances O. Remedial Reading, Diagnosis and Correction at the College Level. Minneapolis: University of Minnesota Press, 1943.

9. Wert, James E., Charles O. Neidt, and J. Stanley Ahmann. Statistical Methods in Educational and Psychological Research. New York: Appleton-Century-Crofts, Inc., 1954.

B. PERIODICALS

10. Ahmann, J. Stanley. "Prediction of the Probability of Graduation
of Engineering Transfer Students, " Journal of Experimental
Education, 23:281-88, 1955.

11. _____, and Marvin D. Glock, "The Utility of Study Habits and
Attitudes Inventory in a College Reading Program, " Journal
of Education Research, 51:297-303, December, 1957.

12. Anderson, J. (ed.). "Dimensions of the Characte istics Related
to High and Low Achievement of a Selected Group of Negro
College Students, " Doctoral Abstracts, 22:1082, 1961.

13. Calia, Vincent Frank. "The Use of Discriminant Analysis in the
Prediction of Performance of Junior College Students in a
Program of General Education at Boston University Junior
College, " Doctoral Abstracts, 20:3190, 1959.

14. _____. "The Use of Discriminant Analysis in the Prediction of
Scholastic Performance, " Personnel Guidance Journal, 39:
184-92, 1960.

15. Chansky, Norman, and Martin Bergman. "Improvement of Read-
ing in College, " Journal of Education Research, 51:313-17,
December, 1957.

16. Cooley, William W. "Identifying Potential Scientists: A Multivari-
ate Approach, " School Science and Mathematics, 59:381-96,
1959.

17. Curran, Ann Marie. "Non-Intellectual Characteristics of Fresh-
men Underachievers, Normal Achievers and Overachievers at
the College Level, " Doctoral Abstracts, 21:2584, 1960.

18. Davies, William C. "Why We Need College Reading Programs, "
College Reading Association, 96-101, Fall, 1967.

19. Feinberg, Mortimer R. "Results of a Mandatory Study Course for
Entering Freshmen, " Journal of Developmental Reading, 5:
95-100, Winter, 1962.

20. Joyce, William D. "A Study of Academic Achievement and Per-
formance on a Test of Library Understandings, " Journal of
Educational Research, 54:198-99, 1961.

21. Kammann, R. A. "Aptitude, Study Habits and Reading Improvement," _Journal of Developmental Reading_, 6:77-96, Winter, 1963.

22. Mierzwa, J. A. "Comparison of Systems of Fata for Predicting Career Choice," _Personnel and Guidance Journal_, 42:30-34, 1963.

23. McDonald, Arthur S. "Influence of a College Reading Improvement Program on Academic Performance," _Journal of Educational Psychology_, 48:171-81, March, 1957.

24. Popham, W. James. "The Validity of the SSHA with Scholastic Overachievers and Underachievers," _Education Research Bulletin_, 39:214-5, November, 1960.

25. Preston, Ralph C., and Edwin N. Tuft. "The Reading J.ubits of Superior College Students," _Journal of Experimental Education_, 16:196-202, 1948.

26. Reeves, Floyd W., and John Dale Russell. "Admission and Retention of University Students," _University of Chicago Survey_, 5:143-44, 1933.

27. Robinson, Francis P. "Can College Freshmen in the Lowest Tenth in Reading be Aided Scholastically?" _School and Society_, 34: 843-46, 1931.

28. Robinson, H. A. "A Note on the Evaluation of College Remedial Reading Courses," _Journal of Educational Psychology_, 41: 83-96, 1950.

29. Traxler, Arthur E. "Ten Years of Research in Reading," _Educational Records Bulletin_, No. 32, Educational Record Bureau, New York.

30. Triggs, Frances O. "Remedial Reading Programs: Evidence of Their Development," _Journal of Educational Psychology_, 33: 72-76, 1942.

31. Wedeem, Shirley U. "Two Years Basic Skills Study," _Journal of Reading_, 10:231-37, January, 1967.

32. Wheeler, Lester, and Viola Wheeler. "The Relationship Between Reading Ability and Intelligence Among University Freshmen," Journal of Educational Psychology, 40:230-38, April, 1949.

33. Willey, D. S., and C. W. Thomsen. "Effective Reading and Grade Point Improvement with College Freshmen," School and Society, 83:134-35, April, 1956.

C. PUBLICATIONS OF LEARNED ORGANIZATIONS

34. International Reading Association. National Council of Teachers of English on Reading at the Secondary School and College Levels. Delaware: International Reading Association, 1960.

35. Reading Conference of Syracuse University. That All May Learn to Read. Syracuse, New York: University Press, Vol. 1, 1960.

36. Schick, George B., and Merrill May. (ed.). Junior College and Adult Reading Programs, Expanding Fields, 16th Yearbook of the National Reading Conference. Milwaukee, Wisconsin: The National Reading Conference, Inc., 1967.

37. _____, and _____. New Frontiers in College and Adult Reading, Fifteenth Yearbook of the National Reading Conference. Milwaukee, Wisconsin: The National Reading Conference, Inc., 1966.

D. UNPUBLISHED MATERIALS

38. Booker, Ivan A. "The Measurement and Improvement of Silent Reading Among College Freshmen." Unpublished Doctoral Dissertation, University of Colorado, Denver, Colorado, 1958.

39. Breen, Lelwyn C. "The Relationship of Reading Ability to College Mortality of Certain Entering Freshmen at the University of Washington." Unpublished Doctoral Dissertation, University of Washington, Seattle, Washington, 1953.

40. Bronson, William Spencer. "The Development of Diagnostic Procedures for College Level Reading Classes." Unpublished Doctoral Dissertation, University of Colorado, Denver, Colorado, 1953.

41. Calia, Vincent Frank. "The Use of Discriminant Analysis in the Prediction of Performance of Junior College Students in a Program of General Education at Boston Junior College." Unpublished Doctoral Dissertation, Boston University School of Education, Boston, Massachusetts, 1959.

42. Gladfelter, Millard Elwood. "Changes in Reading Ability of 474 Students During the Freshman Year in College." Unpublished Doctoral Dissertation, University of Pennsylvania, Philadelphia, Pennsylvania, 1945.

43. Moler, Donald L. "An Evaluation of Gains in Reading Achievement of College Students Enrolled in the University of Kansas Reading Improvement Program." Unpublished Doctoral Dissertation, University of Kansas, Kansas City, Kansas, 1951.

44. Montgomery, Elizabeth Briggs. "Certain Kinds of Reading Disability at the College Level Occurring Among Students at the Reading Clinic of the University of Oregon." Unpublished Doctoral Dissertation, University of Oregon, Eugene, Oregon, 1934.

45. Monro, James Jackson Rutherford. "The Predictive Value of Entrance Reading Test Scores at the University of Washington." Unpublished Doctoral Dissertation, University of Washington, Seattle, Washington, 1954.

APPENDICES

APPENDIX A

SUMS, SQUARES, MEANS AND STANDARD DEVIATIONS OF VARIABLES

TABLE 3

SUMS, SQUARES, MEANS AND STANDARD DEVIATIONS OF VARIABLES[*]

	Y	X_1	X_2	X_3	X_4	X_5	X_6	X_7
ΣX	164.70000	2707.0000	2635.0000	1789.0000	2925.0000	80.0000	68.0000	126.0000
ΣX^2	600.2688	137549.0000	129881.0000	64007.0000	153401.0000	126.0000	90.0000	352.0000
ΣXY		8023.2600	7733.6000	5448.9200	8602.2500	234.9400	195.0200	379.1900
$\bar{X}$	2.8895	47.4912	46.2281	31.3859	51.3158	1.4035	1.1930	2.2105
S.D.	.64807	12.5698	11.9164	11.7473	7.6158	.4899	.3874	1.1662
N	57	57	57	57	57	57	57	57

* These statistics were computed by the University of Portland Computer Center.

VITA

VITA

Donna Jean Broyles Corlett was born in Seattle, Washington.
She attended elementary school in Spokane, Washington; Wallula,
Washington and Moscow, Idaho. She graduated from Moscow High
School in 1947.

She attended the University of Idaho in Moscow, Idaho where she
graduated with a Bachelor of Arts in English in 1951. She had a double
major, one in English and one in Education. The Education major in-
cluded two semesters of practice teaching--one in elementary and one
in secondary. Her two minors were in social studies and speech. Ten
years later in 1960-61 she did a year's graduate work as a teaching
fellow at Washington State University in Pullman, Washington. She
completed her Master's of Education degree in reading from the Uni-
versity of Oregon in Eugene, Oregon in 1965.

Seven years of teaching in elementary and junior high school
were done in the Tri-Cities, Washington and in Moscow, Idaho. One
year in Pasco, Washington was spent substituting grades one through
twelve. She moved to Vancouver, Washington in 1961 as a reading
specialist at Hudson's Bay High School. Here she was chairman of the
junior high and secondary reading specialists. In 1964 she joined the
Portland State College staff to organize and administer the Reading

Clinic in the Counseling Center. She conducted remedial reading classes for adults in 1962 at Clark Junior College in Vancouver. In 1963 she participated in an educational T. V. program from Vancouver and in 1964 she gave demonstrations on "How to Study" at the Washington State Reading Convention in Bellevue, Washington. In 1965 she taught reading improvement classes to students above the Master's Degree level for the Oregon Extension of Education. Under a government sponsorship given in 1966 she conducted two workshops in developmental reading for secondary teachers in Vancouver. Over the past five years she has served as a reading consultant and diagnostician in both Vancouver and Portland.

She is a member of the following organizations: National Education Association, Northwest Reading Consultants Organization, International Reading Association, Vancouver Teachers' Association, Oregon Association for Supervision and Curriculum Development, American Association for University Women and the League of Women Voters. She has traveled in Europe, South America, Mexico, Hawaii, Canada and the U. S. A.

She began a program of studies in preparation for a Doctorate in Education at the University of Portland in 1966 as a teaching fellow. She completed the degree in May, 1969.