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A study to ascertain the relationship between pre- and post- Nelson-Denny reading test scores of two hundred seventy-five freshmen and their reading and writing grades at a suburban state college.

Shirley Nan Washington
University of Massachusetts Amherst

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A STUDY TO ASCERTAIN THE RELATIONSHIP
BETWEEN PRE- AND POST- NELSON-DENNY READING TEST SCORES
OF TWO HUNDRED SEVENTY-FIVE FRESHMEN
AND THEIR READING AND WRITING GRADES
AT A SUBURBAN STATE COLLEGE

A Dissertation Presented

By

SHIRLEY NAN WASHINGTON

Submitted to the Graduate School of the
University of Massachusetts in partial fulfillment
of the requirements for the degree of

DOCTOR OF EDUCATION

June       1978

Education
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To Roger
ACKNOWLEDGEMENTS

The author acknowledges with deep gratitude the following dissertation committee members for their contributions, challenge, support, and availability: Dr. Harvey Scribner, my chairperson, whose invaluable assistance throughout my program of study at the university provided perspective, understanding, and the direction necessary to complete this dissertation; Dr. Rudine Sims, whose guidance and added insights into reading provided further dimension to my study; and Dr. Floyd Williams, whose continued support and cooperation provided encouragement from the beginning to the end.

Special indebtedness and gratefulness are extended to the following members of the selected college used in this study for providing services needed for obtaining the data: Dr. Earl Allgood; Dr. Hunter Hamlett; Dr. Mae Johnson; and Dr. Thomas M. Law.

Sincere appreciation and a special note of thanks are extended to the following "hometown" folks who provided inspiration and encouragement: Mrs. Clyde Bailey; Dr. Donald L. Banks; Mr. and Mrs. Arnold Martin; Dr. and Mrs. James F. Nicholas; Mr. Roger L. Powell; and Mrs. Hattie Washington, my beloved mother. In addition, special thanks are extended to Dr. Frank Bannister; Ms. Johnnella Butler; Mrs. Sarah Cheatham; and Mrs. Mary Eason, whose offered criticism provided greatest encouragement from the beginning to the end.

Finally, I am extremely grateful for other wonderful people and services affiliated with the university which proved invaluable in the preparation of a project of this scope: Mr. John Walsh, my supervisor,
and other employees of the Personnel Department; Ms. Sally Powell and
other staff associated with the Laboratory of Psychometric and Evaluative Research; special services made available by the Committee for the
Collegiate Education of Black Students; typing services made available
by Ms. Nancy Smith; and for words of kindness and encouragement from:
Mr. and Mrs. Kieran Cooper; Dr. O.C. Daniels; Dr. Evangeline Darity;
Dr. James DeShields; Mr. William Harris; Ms. Deborah Jackson; Mr. Robert
Leslie; Mrs. Jessyca McCargo; Ms. Gloria Porter; Dr. Charlena Seymour;
Ms. Betty Shaw; Mrs. Barbara Smith; Mrs. Preston Smith; Mr. Benjamin
Swan; Mr. and Mrs. James Tucker; Mr. and Mrs. Mark Whilden; Ms. Denise
Williams; Ms. Vea Williams; and Ms. Kelly Wright.
ABSTRACT

A STUDY TO ASCERTAIN THE RELATIONSHIP BETWEEN PRE- AND POST-
NELSON-DENNY READING TEST SCORES OF TWO HUNDRED SEVENTY-FIVE
FRESHMEN AND THEIR READING AND WRITING GRADES AT A SUBURBAN
STATE COLLEGE

(September 1978)

Shirley Nan Washington, B.S., M.S., M.Ed., Virginia State College
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Directed by: Dr. Harvey B. Scribner

The purpose of this study was to assess the relationship between
Nelson-Denny Reading Test scores of freshmen at a selected suburban
state college and their grade point averages for the first semester,
1976, total subject (cumulative) achievement, a reading course, and a
freshman-level writing course. In addition, a subsidiary question was
examined: How does the college's arbitrary selection of 12.0 grade
score on The Nelson-Denny Reading Test reflect the likelihood for
students being misclassified according to their reading and writing
abilities who were arbitrarily assigned to a reading course based on
that score?

The population of this study consists of 275 freshmen who scored
less than twelfth grade, 12.0, on The Nelson-Denny Reading Test and who
were consequently programmed into a remedial reading course by the
college in this study. An additional 146 students who were exempted
from the reading course yet enrolled in the freshman-level writing
course were included to determine the relationship between Nelson-Denny
Reading pre-test scores and both, total subject achievement and grade
point averages in the writing course for the 421 students.
Findings regarding the relationship between Nelson-Denny Reading Test scores and grade point averages for the first semester, 1976, total subject achievement and writing grades for the Total Group revealed that the pre-test scores did not serve to be a valid predictor of academic success. The moderately low correlations of .37 and .41 for pre-test scores and "Freshman Writing" grades and for pre-test scores and cumulative semester grade point averages respectively, were not acceptable correlations as set forth by the investigator in this study. However, Nelson-Denny Reading pre-test scores for the Reading Center Group only did serve to be a "moderate" predictor of success for post-test scores; also, the post-test scores correlated moderately with "Reading Center" grades.

In regard to the subsidiary question of "Misclassification", data revealed that the relationship between the distributional percentages of "Freshman Writing" grades and the cumulative semester grade point averages to Nelson-Denny Reading Test scores were statistically significant at the .05 and .001 levels of confidence respectively for the Reading Center Group.

In addition, data revealed that 27.4% misclassifications were prevalent among the Non-Reading Center Group. Thus, it was concluded that a score of 12.0 on The Nelson-Denny Reading Test should not be the determining factor as to the college's programming students into the remedial reading course.

It was recommended that a closely monitored performance-based criterion of reading skills should be implemented by the college in this study to determine the required level of reading necessary to
perform adequately in courses offered by the college. Moreover, the college might well find that a twelfth grade level of reading as reflected by The Nelson-Denny Reading Test may be a higher minimum standard than is needed to do "B" or "C" level work in particular courses offered by the college.
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CHAPTER I
INTRODUCTION

A major concern in higher education circles is that many students lack the reading skills necessary to do college level work. Concerned employers, parents, teachers, and administrators are demanding accountability for students' reading performances and calling for a move of "back-to-basics" in education for fear that students will not be able to cope successfully in college and/or working environments. Many members of the aforementioned groups hold that a move of "back-to-basics" in education emphasizing reading and writing skills will assist both elementary and secondary-level school students with the development and strengthening of communicative skills. Thus, resulting from a move of "back-to-basics" in education, colleges might well be better able to reduce the amount of remedial, academic support services made available to their students while increasing the amount of developmental, academic support services for today's college students.

Statement of the Problem

The reading achievement of high school graduates has decreased significantly within the last decade ("The Scholastic Aptitude Test," 1976; "National Decline in Test Scores of the College-Bound," 1976). At least eleven institutions of higher learning assess entering students' reading achievement with the instrument on which this study focuses, The Nelson-Denny Reading Test (Washington, 1977). The historically Black college used in this study requires freshmen to earn
a minimum of grade 12.0 reading level on the test before being accepted as "matriculating" freshmen. Those entering students who have not attained the reading level of 12.0 must attend the Reading Center until the required reading level of 12.0 is attained. If the required reading level of grade 12.0 is not attained by the end of the first year, students may enter their next sequence of courses providing they continue their registration in the Reading Center.

This study purports to assess the relationship between pre- and post-Nelson-Denny Reading Test scores of freshmen and their grade point averages for the first semester, 1976, total subject achievement, reading and writing grades at that same college, and it purports to determine the degree of predictive validity of the test in forecasting grade point averages in the two communication skills courses in which students are consequently enrolled, as well as for the cumulative fall semester, 1976, grade point averages.

Purpose of the Study

It is the purpose of this study to ascertain the relationship between Nelson-Denny Reading Test scores of freshmen at the selected suburban state college and their grade point averages for the first semester, 1976, total subject achievement (cumulative semester grade point average), reading grades, and writing grades. The study will examine students' test scores below the grade level of 12.0 as obtained from the freshman class of 1976 at the college. The selected college places students scoring less than 12.0 on The Nelson-Denny Reading Test in its Reading Center and has done so for several years. The
study will examine the selection of the 12.0 score on The Nelson-Denny 
Reading Test and its likelihood for students being "misclassified" as 
to their reading and writing abilities, and to their overall academic 
success as reflected by their first semester, 1976, cumulative grade 
point averages.

The test is used by the college on the assumption that a high 
correlation exists between the pre- and post-test scores; and the col-
lege expects that students having higher reading scores will earn 
higher cumulative grade point averages (Hamlett, 1977). If the test 
proves to have a high positive relationship with teacher assigned 
grades, then it can justly be used as a factor for determining academic 
placement of freshmen.

The major research question is: What are the relationships between 
pre- and post-Nelson-Denny Reading Test scores of two hundred seventy-
five freshmen and the percentages of grade point averages for the first 
semester, 1976, total subject achievement (cumulative semester grade 
point average), reading grades, and writing grades at a selected col-
lege? The following subsidiary question will be examined: How does 
the selection of 12.0 score on The Nelson-Denny Reading Test reflect the 
likelihood for students being "misclassified" as to their reading and 
writing abilities? Misclassification will be defined in one of the two 
following ways:

1. The placement in only the writing course of students who 
score 12.0 or greater on the pre-test and whose cumulative 
fall semester, 1976, grade point averages are less than 
the required 2.0 cumulative average for good academic 
standing.

2. The placement in both the remedial reading and the writing
course of students who score less than 12.0 on the pre-test and whose cumulative fall semester, 1976, grade point averages are equal to or greater than the required 2.0 cumulative average for good academic standing.

Significance of the Problem

A study involving the relationship between grade point averages in G.E.10 "Freshman Writing", and in ED.09R "Reading Center" into which students are programmed based on the grade equivalent scores earned on The Nelson-Denny Reading Test, is worthy of investigation because it provides the selected college with updated information concerning the validity of using the test as the criterion for programming students into academic placement. Since The Nelson-Denny Reading Test is being used as a predictor of academic success in communicative skills' courses and ultimately as a predictor of success as reflected by cumulative grade point averages, and because the selected college adheres to open admissions, this study will examine the reliability of a 12.0 level of performance on the test which is used for academic placement of freshmen. For example, if students scoring low on the test earn grades inconsistent with low test scores, it is essential that the college be informed of this unreliability and reexamine the validity of the 12.0 minimum acceptance as an indicator of the placement of students in a remedial reading course.

Reading problems of high school graduates and/or college students as viewed by employers seem to be critical. The aforementioned statement may be substantiated by a study conducted by Kokes (1977) utilizing employees at the Department of Training and Development of
Evanston Hospital in Illinois in conjunction with their Nursing Committee. This employee education program was designed to assist employees in obtaining the General Educational Development diploma. Although the total percentages of students enrolled in the program per reading category were not presented in Kokes' study, the need for development of the employees' reading skills as measured by a reading inventory was evident. For example, in identifying employees' levels of reading as measured by an informal reading inventory developed from a supplemented SRA Reading Laboratory Kit, Kokes, the instructor for a Basic Employee Education Program, reported that employees were identified as falling into the following reading categories: Advanced Reader, 7+ (above seventh grade); Intermediate Reader, 5+ (fifth grade to seventh grade); Low Skill Reader, Below 5+ (below fifth grade); and those who need English as a second language. Since 1972, employees' use of this program has steadily increased as they realize more and more the importance of developing basic skills to their job performance and everyday life goals and experiences.

Not only are employers concerned about reading, but secondary school teachers and principals report that reading performances of high school graduates are of great concern to them, too. At a National Association of Secondary School Principals' conference in April, 1976, it was resolved that the high school diploma should be based on competency. Nearly 800 conferees felt the high school diploma should imply functional literacy in reading, writing, speaking, and listening, among other skills, and sought to show how unhappy they were with students' reading performances (Chaffee, 1976). A move for teacher accountability
for students' performances is being pushed by many principals, parents, and other concerned persons.

Reported observations by parents and others regarding high school graduates' performances in reading indicate that many are concerned that high school graduates' reading performances be improved. For example, findings assessed from a national study by Frank Armbruster, author of a Hudson Institute study of school procedures and test scores over several decades, showed that parents believe excessive use of telephones and televisions had a highly negative influence on students' communicative skills ("Meaning of the Low Test Scores," 1976). Similarly, the need for development of reading skills among high school graduates is supported by a study conducted by a team headed by W. E. Barron of the University of Texas and released by the U. S. Office of Education in 1975. The 1975 study reveals that 19.7 percent of adults have difficulty with such basic skills as reading, computation, writing, and problem solving. In addition, Cunningham adds, 53.6 percent of the adult population did not function at a high proficiency level in the aforementioned skill areas.

In accord with the apparent need for more proficiency in basic skills, more and more colleges are providing supportive services after assessing reading skills of entering freshmen and identifying those students in need of skills' remediation. At the college in this study, The Nelson-Denny Reading Test is administered to all entering freshmen, and those failing to attain a grade score of 12.0 are assigned to a remedial reading treatment, a reading course. Academic support centers, reading clinics, writing laboratories, speech clinics, and other
services are provided college students in need of communicative skills' development at the beginning of their college careers, or at the beginning and during their academic years.

**Academic Support Services As a Means of Providing for Skills' Remediation and Development**

Among the supportive services available to those college students who need assistance are: Individual/group tutoring, reading and study skills programs, writing courses, educational laboratories, academic counseling and advising, learning centers, computer-assisted instruction, and others. Literature reveals that colleges offer special programs and/or supportive services representing various types of systems with diverse functions that are designed to enable students to perform at a satisfactory level and stay in college. For example, in surveying twenty-five institutions of higher learning in West Virginia, Call (1977) found that nineteen (76 percent) had College Reading Improvement Programs (CRIP); the principal reason given most often for the establishment of CRIPs by college administrators and CRIP coordinators was low scores on the verbal section of the entrance exams. A different approach, the Modular Reading Program for teaching remedial and college level reading courses, is offered at Hunter College of the City University of New York. Students who need to develop skills, particularly in reading, yet who do not necessarily need exactly one semester of work, are expected to participate in the Modular Reading Program. This program is a system of consecutive but independent units of instruction. Fifteen modules have been developed to date. They include: Phonics;
Reading Skills I; Reading Skills II; Vocabulary I; Reading Comprehension I; Study Skills; Library Skills; Vocabulary II; Reading Comprehension II; Vocabulary III: Reading Fluency I; Critical Analysis; Vocabulary IV: Thesis-Term Paper Writing; and Reading Fluency II. "The series of modules taken by each student depends on the results of a placement examination which has been written by the author, each section of which is specifically paired with one of the modules offered. Students who satisfactorily pass all sections of the examination are required to take only Term Paper Writing, Study Skills, and Reading Fluency II modules and hand in a satisfactory term paper. Students earn three credits for this work after spending a total of three to five weeks in the modular program" (Sowande, 1977, p. 137).

Academic support services exist to provide students with added assistance to keep up with their college requirements. The aforementioned statement may be substantiated by Roueche (1977) who states: "Increasing numbers of students entering institutions of higher education, even the most prestigious of universities, need part-time support or full-time instruction and practice in reading, writing, and math.... Students are enrolling in courses designed to improve their chances for survival in both their academic efforts and in their everyday activities" (p. 67). Along the same line of thought, Allington (1977) points out that educators have developed remedial and corrective reading classes and a host of training programs, materials, and techniques to use in the reading classes.

At the selected college in this study, the academic support service, "Reading Center", is utilized by approximately one-half of the
entering freshman class who usually fail to attain the 12.0 grade score on The Nelson-Denny Reading Test (Hamlett, 1977). Crucial to this study, Hamlett (1977) points out that scores from Form A of The Nelson-Denny Reading Test are used as the only criterion for programming freshmen into the remedial reading course, ED.09R, "Reading Center". This academic support service is designed for strengthening and expansion of reading skills as measured by Form B of the test.

**Overview of The Nelson-Denny Reading Test**

The Nelson-Denny Reading Test, a diagnostic instrument, was originally edited by M. J. Nelson and E. C. Denny in 1929. In 1960, a Professor of Rhetoric at University of Minnesota, revised the test and the revision was published by Houghton Mifflin and Company. Forms A and B of the test are used by the college in this study. As stated in the *Description of Curricula and Diagnostic Testing in this Study*, Form A is administered to all freshmen upon entering the college. Form B is administered at the end of the semester to those students having enrolled in the course in reading, and this form serves as the post-test for freshmen at the college. Although Forms C and D were printed in 1973 by Houghton Mifflin and Company, to date, the selected college continues to use Forms A and B of The Nelson-Denny Reading Test.

Brown, J. (1960) contends that The Nelson-Denny Reading Test is designed for use in grades nine through sixteen, and purports that the test provides a useful measure of reading in terms of vocabulary and comprehension. It serves predictive, screening, and broadly diagnostic purposes. For screening and for prediction of academic success, Brown
The Nelson-Denny Reading Test.

1. Agatha Townsend (1965), Consultant, Educational Records Bureau, New York, New York, views the test as a useful tool for college placement, but has reservations regarding the rate score...the rate score is based on a testing time of only one minute, although there is considerable evidence to suggest that such a brief sample is not so reliable as rate measurement over a longer interval.

2. David B. Orr (1965), Senior Research Scientist, American Institute for Research; and Director of School and Survey Research, University of Pittsburg Project Talent Office; Washington, D. C., agrees that the test is carefully constructed. Yet, he offers a criticism regarding the ineffective communication of the test itself:...one criticism of the content of the reading comprehension portion of the test is that some of the passages draw their difficulty from what is essentially poor writing, i.e., long, involved, and somewhat awkward sentences and constructions.

Standardized tests, such as The Nelson-Denny Reading Test, are frequently used on the assumption that there is a positive relationship between high test scores and academic achievement. Accordingly, a total reliance on the pre-test scores of The Nelson-Denny Reading
Test is used by the college in this study for academic placement of students.

**Use of Standardized Tests in Predicting Academic Achievement in College**

Results of The Nelson-Denny Reading Test, a standardized test of reading achievement, are frequently used for forecasting academic success in communicative skills' courses. While the degree or predictive ability that standardized tests of reading achievement continues to be questioned, the search continues for a standardized test that will forecast accurately academic success at the college level regardless of whether an investigator is concerned with predictions based on either or both of the factors, total subject achievement and special subject achievement (Hamlett, 1977).

The predictive validity of The Nelson-Denny Reading Test as discussed by Blai (1970) suggests a positive relationship between "high" and "low" academic achievement and "high" and "low" Nelson-Denny scores. Blai presents hints for interpreting results from The Nelson-Denny Reading Test and maintains that the test used at Harcum Junior College in Pennsylvania is a useful measuring instrument for predicting academic achievement, screening students, and diagnosing reading and learning problems. He states: "Almost half of the variation between 'high' and 'low' academic achievement is associated with 'high' and 'low' Nelson-Denny scores. This is a substantial degree of association or correlation, making Nelson-Denny scores very valuable predictors of academic success" (p. 1).
Another example of the predictive validity of The Nelson-Denny Reading Test may be seen in a study by Chadwick and Walters (1975). They conducted a study to determine the success/failure rate of first semester college students reading below the ninth grade level as measured by The Nelson-Denny Reading Test at Consumnes River College in California. They concluded that "...the reading level as indicated on a test of reading ability is a good predictor of academic success for students who take 6 or more academic units but is a poor predictor of success for students taking 5 units or less" (p. 4). It may be concluded from Chadwick and Walters' study that there is a positive relationship between Nelson-Denny Reading Test scores and grade point averages for freshmen enrolled as full-time students at Consumnes River College; also, it may be concluded that a positive relationship between Nelson-Denny Reading Test scores and academic success as measured by grade point average may be indicative of findings at other colleges across the nation, as well as at the college used in this study.

The literature pertaining to predictive validities of Scholastic Aptitude Test (SAT) scores shows that educators make predictions based on two factors: Total subject achievement and special subject achievement. Predictions based on the first factor consist of using the overall grade point averages from particular subjects. For example, Dalton (1976), in predicting college freshman success, used total course achievement. According to Dalton, "...on five occasions spanning a thirteen year period (1961, 1965, 1970, 1973, and 1974), the Bureau of Educational Studies and Testing at Indiana University obtained freshman data at the end of one semester's work to determine the predictive
validity of HSA (high school achievement) and SAT when they were used as predictors in a multiple regression equation" (p. 446). Dalton presented comparable longitudinal data from a study at the University of Southern California (USC) by Michael and Jones to determine whether the declining predictive validity evident in Michael and Jones' study is a phenomenon general enough to emerge at another university in a later time period. According to Dalton, Michael and Jones found "...a reduction in predictive validity when forecasting college freshman grade point average (GPA) from the Scholastic Aptitude Test (SAT) of the College Entrance Examination Board and from high school achievement (HSA) data. Michael and Jones drew their subjects from freshman students at USC. Samples were selected in 1956, 1957, 1958, 1960, and 1961" (p. 445). Dalton contends that his findings gleaned from freshman data at the end of one semester's work are consistent with those by Michael and Jones in two respects: "... (a) with regard to academic achievement, females were more predictable than males; (b) the ability to predict college grades from SAT and HSA seems to be decreasing" (p. 445).

Less convincing about the predictive value of tests are the reports of studies done by Brown and Lightsey (1970), and by Gussett (1974). According to Brown and Lightsey, "...data for the study consisted of SAT-V (Scholastic Aptitude Test - Verbal section) and SAT-M (Scholastic Aptitude Test - Mathematics section) scores, and the first-earned grade in freshman English, for each of the 1004 freshman students entering Georgia Southern College in September, 1969. A 20 percent random sample, stratified on the basis of sex, contained 125 women and 76 men.
Letter grades in freshman English were converted to numbers according to the scale in standard use by all departmental divisions at the college" (pp. 962-963). Findings from the study indicate that the SAT scores, both part and total, did not provide a sound basis for the accurate prediction of freshman English grades.

Gussett (1974) conducted a study to determine the predictive validity of the SAT scores (verbal, math, and total) in the prediction of grades earned by a random sample of 142 women in freshman mathematics at Longwood College in Virginia. According to Gussett, data were summarized as follows: "...The SAT-T and the SAT-M scores yielded substantial correlations (.63 and .62) with earned grades in freshman mathematics. The SAT-V scores furnished a modest correlation of .48 with the earned grades in freshman mathematics, and for those students included in the sample, all correlations between SAT scores and earned grades in freshman mathematics were statistically significant beyond the .01 level" (p. 954).

From this brief overview of studies regarding the predictive validity of The Nelson-Denny Reading Test and one of the most widely used achievement tests, the SAT, it is clear that further exploration as to the accurate forecasting based on such test results of academic success at the college level is needed. This study may or may not produce findings regarding The Nelson-Denny Reading Test similar to the aforementioned concerning the SAT and The Nelson-Denny Reading Test. However, this study should prove valuable to the selected college in this study, and to other colleges, as to the reliability of test scores when using them to program students into academic support services and
to predict academic success, specifically in reading and writing courses.

Profile of the Selected College in this Study

The suburban state college used in this study is a combination Land Grant College, College of Liberal Arts, and College of Education with an enrollment of approximately 4,500 students. Founded in 1882, the college has always been a co-educational institution. Approximately 85% of its students are from within the state. The college is located in a southern state and is about 25 miles from the capital city. Academically, the college consists of four undergraduate schools, a graduate school, and divisions of Continuing Education and Developmental Studies (Selected College, Note 1).

Before being formally admitted to the college, applicants must have graduated from an accredited secondary school or its equivalent (e.g., successful completion of the G.E.D.). All freshman applicants are required to take the Scholastic Aptitude Test (SAT). This college adheres to open admissions regulation; that is, it allows free-access to all in-state students who graduated from high schools (Selected College, Note 2).

After being admitted to the college, all entering freshmen must take The Nelson-Denny Reading Test (Form A). Those students who have not attained the reading level of 12.0 (twelfth grade) on the test must enroll in a remedial reading course, ED.09R. If the required reading level is not attained by the end of the first year, students may enter their next sequence of courses only if they are registered in the course,
ED.09R. As stated in the Description of Curricula and Diagnostic Testing in this study, all students are enrolled in the writing course regardless of their score on The Nelson-Denny Reading Test.

**Description of Curricula and Diagnostic Testing in this Study**

This study utilizes results of selected students' grade point averages for the first semester, 1976, total subject achievement (cumulative semester grade point average), reading grades, and writing grades at a suburban state college; also, test scores from The Nelson-Denny Reading Test. Hamlett (1977) indicated that before entering the college used in this study, all freshmen are required to take The Nelson-Denny Reading Test (Form A). The college's testing service translates the test scores into grade equivalencies and programs students scoring below 12.0 twelfth grade level, into a remedial course in reading. The reading course takes the form of an academic support service. However, freshmen are enrolled in a freshman-level writing course regardless of their score on the reading test. The courses are taken simultaneously by those selected for admission as freshmen at the suburban state college.

Jackson (1978), an instructor of ED.09R "Reading Center", indicated that the course is designed to diagnose students' reading difficulties and to assist students with the development of reading skills. The diagnosis is obtained from The Stanford Diagnostic Reading Test by Karlsen, Madden, and Gardner. During the first week of class, the test is administered, and each student's profile sheet is discussed with him/her in a conference with the reading instructor. During the
conference, strengths and weaknesses as revealed by the diagnosis are discussed, and a prescription is written for the student. Each student having Nelson-Denny Reading Test scores of below 12.0 (twelfth grade) is expected to attend the reading laboratory at least one hour weekly and work on skills to be developed as indicated on his/her profile sheet.

Jackson (1978) further indicates that the textbook used in ED.09R "Reading Center" is The Reading Power by James I. Brown, and supplementary texts used include the following: Timed Readings by Spargo and Williston, Programmed College Vocabulary 3600 by George W. Flinstein, and Improve Your Reading Ability by Arthur W. Heilman. The Brown text employs many timed readings, while the supplementary texts offer exercises relating to basic skills such as: Phrase reading, vocabulary development, critical reading, and skimming.

Student activities include the following: Making out a schedule for studying, surveying a book for different purposes, skimming questions and looking for answers, and developing library skills. A section on how to study utilizing survey questions for reading, reciting, and reviewing is taught, and sections on literal and abstract comprehension are discussed in detail. For example, students work with finding main ideas of passages, cause and effect relationships, enumeration, and figurative language. Most emphasis in teaching the course is placed on the development of vocabulary skills through the use of context clues, structural analysis, and Greek and Latin root words and affixes. Instructors determine grades according to the grading system of the college: A = 4.0, B = 3.0, C = 2.0, D = 1.0, and F = 0.0.
The second course is a freshman-level writing course, G.E.10 "Freshman Writing", designed to develop writing and language usage. Reed (1978), an instructor of G.E.10 "Freshman Writing", indicated this course required frequent and intensive writing (20 - 30 compositions) with the teacher using the student writing as the basis for class discussion. Usage, and diction are all topics for study that can grow out of the student's writing. According to Reed, this introductory course in writing has two aims in its assignments: First, to put the student in a position so that he/she can begin to see, talk, and write in detail about aspects of his/her own experience, and second, to help him/her begin to develop an awareness of the relationship between the act of writing and language usage.

Reed (1978) further indicates that the course meets three times weekly and carries a total of three academic credits. The basic handbook used for writing is The Writing Commitment by Michael Adelstein. Other books in use include: The Random House Handbook by Frederick Crews, Seeing and Writing: Fifteen Exercises in Composing Experience by Walker Gibson, and Emblems of Reality: Discovering Experience in Language by Melvin Ralston and Don Cox.

Procedure and Delimitations

The investigator has requested permission from the Dean, Division of Developmental Studies, and the President of the college in this study to use the following data from students' records: Pre- and post-scores from The Nelson-Denny Reading Test, instructors' grade sheets for ED.09R, "Reading Center" and G.E.10, "Freshman Writing", and cumulative fall
semester, 1976, grade point averages for students used in this study.

Frequency distributions will present the data used in this study. For example, tables will yield frequencies for the following variables for Reading Center and Non-Reading Center students: Pre- and post-scores from The Nelson-Denny Reading Test, number of students taught per instructor, grades assigned per instructor, and cumulative fall semester, 1976, grade point averages.

The paired t-test will be used to report any significance between the pre- and post-Nelson-Denny Reading Test results.

The Pearson product-moment correlation technique will be used for determining the correlations between selected variables. Those correlations deemed acceptable for this study will be those of at least .50. Further, the arbitrary criterion will be used for categorizing correlations: .01 - .24 = "low"; .25 - .49 = "moderately low"; .50 - .74 = "moderately high"; and .75 - .99 = "high". Relationships between the following variables will be tested for significance: Pre- and post-test scores on The Nelson-Denny Reading Test and grades in both, ED.09R, "Reading Center" and in G.E.10, "Freshman Writing", and pre- and post-test scores on The Nelson-Denny Reading Test and cumulative fall semester, 1976, grade point averages.

The chi-square test will be used for testing whether or not grades assigned students enrolled in different sections of courses designed to improve skills in reading and writing are significantly different.

Comparisons of the percentages of grade assignment of 2.0 or higher in G.E.10 "Freshman Writing" and for cumulative fall semester, 1976, grade point averages will be made between those students enrolled in
ED.09R "Reading Center" who scored 12.0 or above on the post-test of The Nelson-Denny Reading Test and those freshmen who were exempted from the reading course because their pre-test scores on the Nelson-Denny Reading Test were 12.0 or greater. In addition, a comparison of the cumulative fall semester, 1976, grade point averages will be made using the students who were enrolled in the Reading Center and those who were exempted from the Reading Center because of earned scores 12.0 or greater on The Nelson-Denny Reading Test. The regression lines of cumulative fall semester, 1976, grade point averages on the pre-test score from The Nelson-Denny Reading Test will be plotted for both Reading Center and Non-Reading Center students.

Delimitations of the study exist in two main areas: 1) population and 2) grades.

1. The population consists of two hundred seventy-five freshmen who scored a grade equivalency of less than twelfth grade (12.0) on the Nelson-Denny Reading Test the first semester of 1976 and who were consequently enrolled in the "Reading Center", ED.09R. An additional one hundred forty-six students who were exempted from the "Reading Center" and enrolled in "Freshman Writing" are included to determine what correlation, if any, exists between pre-test scores and grades in "Freshman Writing", for the total four hundred twenty-one students.

2. Grades in reading and writing courses will be dependent upon the instructors' criteria for assignment and the college's established grading system. There are four instructors for the "Reading Center" course and fifteen for the course in "Freshman Writing". There is always some degree of discrepancy among teachers as to grading.

Plan and Content of this Thesis

In this chapter, the investigator has detailed the reliance of a
college upon the predictive validity of standardized tests for academic success in college. In addition, the chapter provided a statement of the problem, the purpose of this study, the major research question, the significance of this study, and its major delimitations.

Chapter II will contain a review of literature related to the investigation of the problem.

Chapter III will include background information on the research population. A discussion and description of the statistical procedures used to answer the major research question will be presented.

Chapter IV will report a compilation of the findings of this study and an analysis of the data.

Chapter V will summarize the study, the research findings, recommendations, and implications for further study.
CHAPTER II
A REVIEW OF LITERATURE

A major problem of this study is the ascertainment of the relationship between Nelson-Denny Reading Test scores of college freshmen and grade point averages for the first semester, 1976, total subject achievement (cumulative semester grade point average), reading grades, and writing grades. A subsidiary problem is to determine the degree of predictive validity of The Nelson-Denny Reading Test in forecasting grade point averages in the two courses in writing, and reading into which students are assigned when their test score falls below 12.0 (twelfth grade), and for the cumulative semester grade point averages for those same students.

Studies related to the problem in this study have been classified as follows: the need for remedial and developmental reading at the college level, prediction methods used in forecasting scholastic achievement for college freshmen, and The Nelson-Denny Reading Test used as a predictor of scholastic achievement for college freshmen.

The Need for Skills' Remediation and Development in Reading at the College Level

In reference to the expressed concern regarding reading problems of college students, both terms, "remedial" and "developmental" reading, are used frequently when describing needs and programs for today's college-population. The following review of literature and research is designed to acquaint and/or familiarize one with concepts of "remedial" and
"developmental" reading, as well as to provide one with concepts of "Reading skills".

The phrase "below grade placement" is sometimes used when describing the "remedial reader". Lee (1964), for example, makes reference to the "remedial reader" as follows: "Remedial cases involve students who have deficiencies in reading skills and are below grade placement and may be from two to five years below mental maturity" (page 48). In his opinion, teachers of "remedial readers" should have less than ten children per class. It may be concluded from Lee's discussion that the "remedial reader" has more serious reading problems than does the "developmental reader"; accordingly, the "remedial reader" is given a special treatment for overcoming those difficulties.

Reviews by Ekwall (1970) and Carter and McGinnis (1970) propose that a trained teacher works with the "remedial reader" in a clinical setting outside the regular classroom. Unlike Carter and McGinnis (1970), as well as Lee (1964), Ekwall notes that "remedial reading" is a form of developmental reading taught outside of the regular classroom. In defining "remedial reading", he refers to "a program of instruction used outside the regular classroom to teach specific developmental reading skills to underachievers" (page 4).

Ekwall (1970), in defining "developmental reading", views the normal classroom instructional program as an analogy for "developmental reading". He argues that the teacher works with students who are progressing at a normal rate in terms of their capacity. From his definition of "developmental reading", it appears that a more limited amount of the teacher's time is given this type of reader as compared to the amount of time given
the "remedial reader". Carter and McGinnis (1970) are in agreement with Ekwall's notion of "developmental reading" occurring in the normal classroom's instructional program. Furthermore, they render a more detailed description of "developmental reading". According to them, it involves "reading activity during which a group is given directed instruction in vocabulary development, silent-reading preparation, oral reading, re-reading, and supplementary reading for the purpose of increasing reading achievement at the instructional level" (page 311). Thus, while it may be concluded from the previous reviews that the "remedial reader" has insufficient reading skills, in essence it appears, therefore, that the "developmental reader" needs strengthening and expansion of reading skills such as the aforementioned ones.

Bond and Tinker (1967), in discussing insufficient development of basic study skills, list four study skills considered essential for reading. (All of the four skills require activity and involve action, that is, performing skills and applying skills.) The skills include "locating sources of information, using basic references, interpreting pictorial and tabular materials, and setting findings down in a usable form of organization" (pages 380-381).

Smith (1975), like Lee (1964), and Bond and Tinker (1967), proposes that reading skills require activity and involve action. In comparing "skills" to "knowledge", Smith presents an analogy for knowledge, "knowing what". Further, he concludes that while knowledge does not improve with practice, skills do. Thus, one can have a knowledge of what the skill requires without actually performing the skill; the latter, skill performance, is deemed necessary for today's college students, as well as for
other students in need of skills’ remediation and development in reading.

Carter and McGinnis (1970) compiled a listing of materials containing a description of reading skills they deem helpful to teachers and/or therapists working with pupils encountering reading problems. Among those eight recommended for either grade level 8-12, 9-12, or 9-14 are:

**Basic Reading Skills** from Scott Foresman and Company which provides a refresher program on reading skills for students not reading up to grade level (page 348).

**Developing Your Vocabulary** from Science Research Associates which offers techniques for learning new words, use of the dictionary and thesaurus, and discusses homonyms, figurative language, meanings and connotations of words (page 349).

**New Rochester Occupational Reading Series** from Science Research Associates which provides both reading instruction and information about the attitudes and skills that lead to success on the job and in society (page 350).

**Reading, a Key to Academic Success** from William C. Brown Company which shows students how to make effective use of their books and emphasizes reading in the content areas (page 350).

**Scope** from Scholastic Magazines, Inc. which is a weekly periodical developed for the student with mature interests but below normal academic abilities written at fourth through sixth grade reading level (page 351).

**Reading for Understanding** from Science Research Associates which is an individualized reading program to develop skill in reading, to analyze a sequence of ideas, and to make logical conclusions (page 354).

**Reading Laboratory Series** from Science Research Associates in which reading selections and exercises are grouped at the reading levels normally found in a class. These selections are created to develop vocabulary, comprehension, and word-attack skills (page 355).

**Tactics in Reading** from Scott, Foresman, and Company which consist of high-interest selections for the development of specific reading skills: word-attack, dictionary use, sentence and paragraph meaning, and reading to understand figurative language and relationships (page 355).

The lack of development of reading skills as those suggested by
Bond and Tinker (1967) and Carter and McGinnis (1970) may well be a major reason for the failure of college students to perform well on standardized tests. Available literature reveals that a decline in test scores of the college-bound students has caused concern by many people. However, in order to present the problem in proper focus, three charts relating to national testing programs used by college-bound students are presented in this investigation.

Figure 1 presents an overview of national testing programs most often used in the United States by college-bound students, the Scholastic Aptitude Test (SAT) and the American College Testing Assessment Program (ACT). Both tests contain verbal and mathematics sections. While the SAT's verbal section is called "Verbal", the ACT's verbal section is called "English". In addition, the ACT contains sections for Social Studies, and Natural Science. Other characteristics of the tests include possible range of test scores, and the geographical section of the United States where the tests are primarily used.

Figure 2 presents national trends in SAT scores in the United States for years 1962-63, 1964-65, 1969-70, and 1974-75. This line graph reveals, among other findings, that within the period 1962-75, a definite downward trend in scores on the verbal section occurred. Educational Testing Service (ETS) which designs the SAT, claims that the SAT is a test that measures basic verbal and mathematical reasoning abilities developed over a long time ("The Scholastic Aptitude Test", 1976, page 39). Based on the SAT line graph in Figure 2, one might conclude one or both of the following: a) There exists a need for reading improvement among high school graduates; b) SAT administrators must adapt their
National Testing Programs Most often Used in the U.S. by College-Bound Students:

I. SCHOLASTIC APTITUDE TEST (SAT)
   A. PROVIDES ONE SCORE PER SECTION
      1. Verbal Test
      2. Mathematics Test
   B. SCORES RANGE FROM 200-800
   C. USED PRIMARILY IN THE EASTERN STATES

II. AMERICAN COLLEGE TESTING ASSESSMENT PROGRAM (ACT)
   A. PROVIDES SCORES PER FOUR SUBJECT AREAS
      1. English
      2. Mathematics
      3. Social Studies
      4. Natural Sciences
   B. SCORES RANGE FROM 1 - 36
   C. USED PRIMARILY IN THE WESTERN, SOUTHERN, AND NORTH-CENTRAL STATES.
FIGURE 2

National Trends in "SAT" Scores ~
in U.S. for the Years:

KEY: □ VERBAL
□□ MATHEMATICS

YEAR OF "SAT" TESTING
instrument to meet the changing needs of society.

Figure 3 represents national trends in scores on ACT assessment tests in the United States for a ten year period, 1964-1974. This bar graph purports to reveal, among other findings, that a national decline on the English test has taken place within the ten-year period according to a test taken by more than 9,000,000 college-bound students ("National Decline in Test Scores of the College Bound", 1976, page 130). Based on the ACT bar graph in Figure 3, one might conclude either or both of the following: a) There exists a need for reading improvement among high school graduates; b) ACT administrators must adapt their instrument to meet the changing needs of society.

A further review of literature shows that the need for college reading improvement has been recognized for more than fifty years. For example, Staiger (1955) reports that college reading courses had their origin with two psychologists, Valentus and Javal, around 1922. Since then, he notes, "reading courses have developed into many programs in many colleges" (page 74). It is reasonable to conclude that since that time, reading programs of many types have developed at the college level. For example, Lowe (1967) in surveying institutions of higher education having reading improvement programs in the state of Florida in the fall of 1966, summarized her findings to include 79 percent, or 37 out of 53 institutions had such programs. In a similar study conducted by Devirian, et al. (1975), findings revealed that 3,389 campuses had learning centers as listed in the "Educational Directory" in 1974. Responses from 1,258 of the 3,389 questionnaires revealed 217 were named "Learning Centers", 43 were named "Learning Resource Centers", 164 were named "Reading/
National Trends in Scores
on "ACT" Assessment Tests

KEY: ■ 1964 □ 1974

"ACT" Assessment Tests
Writing Lab, 11 were named "Tutorial Program" while 265 centers had other names. From this brief historical perspective of college reading courses and programs, a review of available literature indicates that school-personnel (teachers, administrators, supervisors, and others) as well as employers, parents, disappointed students, and others remain very disturbed by many high school graduates' performances and are advocating a need for remediation and development in reading.

The minimum competency movement, formal testing of the high school senior's competencies for purposes of determining "pass-fail" decisions on his/her achievement in learning, is becoming widespread. Ebel (1978), in examining the reports of incompetence among high school graduates, charged that the demands are coming from employers, parents, and other members of the general public. According to Ebel, members of the public are speaking out against incompetence among high school graduates. Such can be gleaned from his following statements:

From whence do the demands for tests of minimum competency come? Not from the education establishment, i.e., not from most teachers or school administrators or professors of education. No, the demands come from the public and from legislators speaking for the public. They come from disappointed employers, from disappointed parents, and even from some disappointed students.

Instances of incompetence are probably inevitable in any field of human endeavor. But it is not the occasional occurrence of incompetence among potentially good students. The public believes that the schools have certified incompetents as competent by passing them along, graduating them, giving them diplomas, and even in some cases awarding them college degrees (page 546).

A review by Algra (1978) indicates that high school teachers are expressing concern regarding students' failure to meet minimum competencies and are advocating a need for skills' remediation and development. Algra argues that Kern High School District, Bakersfield, California
requires students to meet minimum competencies before they are graduated from high school. Thus, a criterion referenced test, which tests an individual's ability to perform a specific task, was developed by a committee of reading teachers from the district's schools. He further indicates that sources of common reading materials as the following were included as minimum competencies: "The California State Driver's Manual, employment application forms, appliance and vehicle manuals, office memos, and a local newspaper" ...as a result of the pilot testing, "more programs for remediation--especially for eleventh and twelfth grade students--were instituted in both reading and math at the district's schools" (page 394).

The literature also reveals that minimum competency programs are occurring in at least one New England state. Criscuolo (1978) notes that secondary school personnel are focusing interest on making sure the secondary student has acquired certain competencies in reading not only for advanced study but for survival as well. He cites actions taken in Connecticut that substantiate the interest in high school graduates attaining certain reading competencies: "The Senate and House of Representatives in the Connecticut General Assembly recently passed House Bill No. 5839 which requires that after September 1, 1977, each tenth grade student in Connecticut must take a proficiency examination that attests to the acquisition of basic and quantitative skills. If the student fails the examination, he will be re-examined in twelfth grade prior to receiving a high school diploma" (page 129).

Along this same line of thought, a review by Til (1978) shows that at least one southern state, Florida, has implemented minimum competency
testing. He indicates that a leading Florida newspaper reported that "About half the Pinellas county's 7,500 eleventh-graders have to take remedial classes next semester. Most of them passed the functional literacy tests but fell down on one or more parts of the basic skills tests given at the same time last October" (page 557).

A need for skills' remediation and development at the college level is also proclaimed by an Ohio college president. According to the review, the president charged that some 1,700 new students on campus last fall were receiving remedial instruction in English, and, undeniably, many young people heading for college today cannot handle basic English and math as well as others in the past" (College Presidents See the Problem," 1978, p. 2).

Not only is a need for skills' remediation and development in reading seen at the undergraduate level, but it is suggested at the graduate level also. Pyrczak (1978), a researcher on readability and the measurement of reading comprehension at California State University, Los Angeles, built a reading test based on selected abbreviations from classified advertisements on employment opportunities that appeared in several newspapers. His "Test on Abbreviations Used in Classified Employment Advertisements" consisted of abbreviations for nontechnical words that he considered important for potential applicants to know. After administering the 26-item test to 34 students enrolled in a graduate-level research course in education at the university, he found that only four of the 26 items were answered correctly by all of the examinees, "'ans.ph.', '2 yrs. coll. requ.', 'refs.', 'perm.'" Other examinees' scores ranged from 12 to 25 on the test (pages 494-495).
Prediction Methods and Scholastic Achievement

Harman (1976) fears that the educational target of the current decade, "Right-to-Read", as proclaimed by the late Commissioner of Education, James Allen, will not be attained. As Harman recalls, Allen's objective was "to inculcate and improve reading skills among 25 percent of the American population who, he claimed, lacked or were deficient in them" (page 40). In addition to the need for reading skills' remediation and development as presented in the previous section of this thesis, research also shows that predictions of scholastic achievement are made in order that leaders in education may do a better job of preparing for more positive results in education.

Literature relating to prediction methods and scholastic achievement may be categorized in the following three ways: "Intellectual" (formal) methods which include the administering of standardized test/s; "Nonintellectual" (informal) methods which include the administering of assessment tests, i.e., surveys; and "Combination" methods which include both intellectual and informal methods.

Predictions are made that high risk students (that is those needing skills' remediation and development as assessed by some type of "Intellectual" method) can improve upon their forecasted grade point average when a study skills/remedial treatment is employed. For example, Thompson (1976) reports of six research studies which substantiate predictions made regarding college students' improvement of grade point averages. Listed below are several of his findings:

A Study conducted by Miller and Stillwagon in 1970

According to Thompson, "The ACT, Edwards Personality
Preference Schedule, Missouri College English Placement Test, The Nelson-Denny Reading Test, Strong Interest Inventory, and the Wechsler Adult Intelligence Scale were administered.... The group as a whole had a predicted GPA of 1.5 based on high school grades and ACT scores, but they achieved a GPA of 2.2 in summer school and 2.0 in the fall" (pages 4-5).

A study conducted by R. S. Pepper at Wayne State University in 1970

According to Thompson, "Students who applied for admission but did not meet admissions criteria were invited to enter an experimental summer quarter program.... A total of 212 marginal students were enrolled in the summer classes, and 155 later successfully completed four quarters of academic work in their first year.... Informal evaluations of students and instructors indicated that the reading and study skills training made a positive contribution to the academic adjustment of these students.... The Brown-Holtzman Survey of Study Habits and Attitudes was administered at the beginning of the study skills course" (page 4).

A study conducted by M. Kling at Rutgers University

According to Thompson, "...a two week summer reading and study program was developed for 61 disadvantaged incoming freshmen; 84 percent were Black. In the morning, mathematics was taught, and in the afternoon, reading skills and study skills were emphasized, supplemented by work on library utilization.... Success was demonstrated by post test gains on vocabulary, comprehension, and reading rate" (page 5).

A review of studies further indicates that "Nonintellectual" methods of predicting scholastic achievement have been employed regarding grade point averages of college students. In this regard, Norris and Cochran (1977) allowed students to use an informal method of predicting their own achievement with a unique prediction system developed for the System of Interactive Guidance and Information (SIGI). As defined in the study, "...SIGI is a computer-based guidance system designed to help college students make informed and rational career decisions.... The Prediction system is one of six interrelated subsystems--Values, Locate, Compare,
Prediction, Planning, and Strategies..." (page 135). For their study Norris and Cochran used students in high enrollment courses in English, Physics, History, and Speech. They were administered a questionnaire on the first day of classes and were asked to supply answers to the questions relating to competencies that their instructors believe contribute to good grades. Findings revealed that students' informed self-estimate of final grade was one of the best predictors of final grade. For two of the courses, English and Speech, the high school English grade was found to be the single best predictor.

In another example in which the "Nonintellectual" method of predicting scholastic achievement was used, McDonald and McPherson (1975) predicted academic achievement (grade point average) for a sample of 152 students in Principles of Economics classes at the University of Illinois at Chicago Circle. Predictors used in the study included high school type, sex, and socio-economic factors. The data for the study were obtained by administering a questionnaire to the students in the Economics classes. The sample consisted of unmarried white students, except for four married and two Black students. From the study, it was concluded that knowledge of high school type, sex, number of credit hours taken, and perhaps dollar value of scholarships and number of hours of outside work could significantly increase the ability to predict grades beyond that accomplished through using rank in high school class and American College Testing Program (ACT) composite score.

"Combination" methods used to predict scholastic achievement may be seen in a study by Sedlacek and Brooks (1972). They examined intellectual (standardized tests and high school grades) and nonintellectual
(attitudes, personality, and the like) predictors of success for students in special programs for culturally different students. Subjects used in the study consisted of 95 freshmen enrolled in a special program at University of Maryland. The predictors included the SAT, high school grade point average, sex, father's occupation, mother's occupation, whether student had incomplete credit hours or not, instate or not, infrequency, California Personality Inventory Communality, and a specially calculated Admissions Score involving a weighted combination of the above and other scores. Findings from the study showed that the SAT was not a significant correlate of college with grades for males; high school grades did not correlate with college grades for either males or females, and that reasonable predictions of freshmen grades are possible using several nonintellectual predictors.

Henard and Stenning (1976) also used a combination of formal and informal methods of prediction in examining the measurement of reading achievement and life change (amount and rate of change as a stress producing factor). Henard and Stenning contend that the following procedure was used:

The Nelson-Denny Reading Test was administered to 403 entering freshmen at Amarillo College in Texas. In spring, 1975, all 326 continuing students who had taken the NDRT were mailed a demographic data questionnaire, a Social and Collegiate Readjustment Rating Questionnaire (SCRRQ), and an attitude survey. In all, 172 (53 percent) responded, and 117 were selected as study subjects. The following dependent measures were identified for each of the respondents: (1) first and second semester course loads completed; (2) first semester, second semester, and composite grade point average; (3) attitude variables. Reading achievement was found to be significant as a measure of course hour load and grade point average. Life change, however, was an effective predictor only of effective completion of course hour load. The interaction of reading achievement and life change was significant as a predictor only of course hour load" (page 1).
The "Combination" method was used in a study investigated by Mangieri and Olsen (1975) in determining whether a relationship existed between reading ability and self-concept of academic ability. The Nelson-Denny Reading Test (an "Intellectual" or formal test) was administered to 253 freshmen, sophomore, junior, and senior college students. Mangieri and Olsen used the scores to classify the subjects as reading "above actual grade placement" or "below actual grade placement". All subjects were given the Michigan State Self-Concept of Academic Ability Scale (a Nonintellectual or informal test). A two-tailed test of significance was used for determining the statistical significance. Rejection level was set at .05 for each research question. According to Mangieri and Olsen, "Analysis of data indicated that the college subjects in the study who were classified as reading above actual grade level were found to have a more favorable mean self-concept-of-academic ability score (SCOAA) than the college subjects reading below actual grade level.... The mean SCOAA for college subjects reading above grade level was 28.226, compared to a mean SCOAA of 25.450 for those college subjects who read below actual grade level" (page 7).

The Nelson-Denny Reading Test and Scholastic Achievement

From the previous section in this chapter, it was shown that The Nelson-Denny Reading Test has been used with both "Intellectual" and "Combination" prediction methods; also in the "Overview of The Nelson-Denny Reading Test" appearing in Chapter I of this thesis, characteristics of the test were presented. Studies examining the relationship between The Nelson-Denny Reading Test and the scholastic achievement of college
students in need of reading skills' remediation and development, investigated the comparability of test scores from The Nelson-Denny Reading Test, The Scholastic Aptitude Test (SAT), and American College Testing Assessment Program (ACT); miscues, discrepancies between students' reading ability and readability of materials, and the relationship between Nelson-Denny Reading Test scores and grades earned by students enrolled in freshman-level writing courses (English), and also the relationship between Nelson-Denny Reading Test scores and students' cumulative semester grade point averages.

In an investigation to determine the relationships between scores on The Nelson-Denny Reading Test and the Cooperative English Test and varying levels of standing on ACT English and Social Studies and SAT verbal tests, Warming (1976) controlled for high school grade point average, class size, rank in class, and complexity of The Omnibus Personality Inventory. Results from her study showed that for The Nelson-Denny Reading Test, performance was positively related to both ACT English and SAT verbal scores. Warner's subjects for the study were 68 Berea College (Kentucky) students enrolled in two courses in Communication Skills during the years 1971-1972 and 1972-1973. She indicates that of the 87 students assigned to G.S.015, SAT scores were available for 24 and ACT scores for 44. She further adds that in September, 1972, 62 students were originally assigned to the course. Of that number, 28 had ACT scores and 28 had SAT scores. By the end of the course, 4 students withdrew; thus, a total of 52 students were included in the study for the second year. Data were secured from the records of Berea College Testing Service, the Admissions Office, and the reading teacher. It was concluded from findings in this
study that SAT scores correlate more highly with The Nelson-Denny scores (.44) than do ACT English (.26) and ACT Social Studies (.21) scores.

At least one study involving The Nelson-Denny Reading Test has been conducted analyzing miscues made by college students considered to be in need of reading skills' remediation and development. For example, Ohaver (1971) investigated syntactic and semantic cueing as used in oral reading by 30 low reading performance college freshmen, half of whom were higher in vocabulary on The Nelson-Denny Reading Test and half of whom were higher in comprehension scores on the same test. According to Ohaver, "The subjects were selected from 168 freshmen, all of whom were poor readers and spoke pre-dominantly English. All subjects read 150 randomly ordered expressions of three types: sentences, semigrammatical strings (semantically anomalous), and ungrammatical strings. Scoring was based on the number of miscues in each category. Miscue analysis indicated that higher comprehension subjects used both semantics and syntax in oral reading, while higher vocabulary subjects used syntax but did not seem to use semantics. Corrections analysis yielded no differences in use of syntax and semantics. Higher comprehension subjects had more miscues than the higher vocabulary group" (page 1).

Hochman et al. (1972) conducted an investigation during the fall, 1969, and again during the fall, 1970 to determine if student placement in community college programs of study and courses could be improved if objective information related to the reading requirements of each course were related to the student's measured reading ability. The Nelson-Denny Reading Test was administered to 1,000 students enrolled in the Day Division of Rockland Community College in New York. Their reading ability
was diagnosed from the test results and students were enrolled in a pro-
gram of remediation during the fall, 1969. After two semesters of the
reading treatment, the test was re-administered. The results of the test
were computer tabulated and scores were converted into grade-equivalents
based on national norms supplied by the test authors. They noted that
the readability of all textbooks used at the college was determined by
the Fry readability formula. From this study, Hochman et al. concluded
among other findings the following:

On the vocabulary portion of The Nelson-Denny about 57% of the
students scored at the 13th grade and above. The range of
vocabulary scores extended from below the 7th grade to above
the 14th grade. Though nearly 5% of the students scored below
the 10th grade, the largest single group of below-level vocabu-
larv scores (25%) was found in the 12.0-12.9 bracket (page 13)....
The analysis of the students' reading comprehension scores reveals
that only slightly over a half (53%) were reading at the grade 13.0
or higher (college) level.... Analysis of the total reading scores
of the students...revealed that about 75% of the students were
reading at grade 13 or higher level. About 43% were below the
13th grade (college level), 22% below the 12th grade level and
7% below the 10th grade level.... The median readability score
for the 193 texts analyzed was located in the 12.0-12.9 grade
level bracket" (page 14).

Findings from Hochman's study confirm the charge that degrees of discrep-
ancy exist between students' reading ability and the readability of
materials assigned.

Along the same line of reference regarding the readability of
materials and students' reading level, Block et al. (1976) examined
the relationship between the reading abilities of 215 freshmen composi-
tion students and the readability of their college textbooks. Measures
from The Nelson-Denny Reading Test and the Dale-Chall Readability Formula
were used to assess the relationship. Results indicated that "72% of the
students were scoring at or above the freshman level. Therefore, four out
of the six freshman textbooks used in the study might be considered inappropriate for over one-fourth of the total student sample" (page 1). One may conclude that texts containing various levels of readability may or may not be included in the college curricula, and also that students' reading abilities may be overlooked by classroom instructors.

The following review of literature suggests relationships between Nelson-Denny Reading Test scores and scholastic achievement. Some studies present detailed statistical findings while others have only suggested evidence of the findings. Thus, studies have been categorized as those with findings of a positive relationship and those with findings of no significant relationship.

An exploration of the relationship of student scores on The Nelson-Denny Reading Test to academic performance as reflected by grade point averages was conducted for 1,981 entering students at Leeward Community College in 1975. Analysis of data revealed that highest scores on the vocabulary section of the test were found among students with GPA's of at least 3.5. The correlation coefficients between GPA and vocabulary scores and between GPA and comprehension scores were .224 and .111, respectively ("Analysis of Nelson-Denny Reading Test Scores, Leeward Community College, Fall 1975 New Students", 1976).

Cartwright (1971), in describing a study skills program designed to meet the needs of the "open door" policy student, indicates that students are given Form A of Nelson-Denny Reading Test upon entering the program and they are given Form B upon exiting. According to Cartwright, "Many of the students make fantastic gains, others only marginal ones. At the end of the academic year, gains have been made as high as 5 years eight months
and as low as two months" (page 11).

Blai Jr. (1970), in a presentation to faculty and staff of Harcum Junior College (Pennsylvania), also proclaimed that The Nelson-Denny Reading Test is a useful measuring instrument for predicting academic achievement. He presented findings from research investigated using Harcum students. Although specific details regarding his population and procedure were not available, he cited the following findings:

Research with The Nelson-Denny indicates a close relationship between the test scores and scholastic achievement—an average correlation with academic achievement of $r = .67$. For such a pair-wise, linear association, the Coefficient of Determination ($r^2$) indicates the strength of association between the two criterion variables of Nelson-Denny scores and scholastic achievement means that 45% of the variations between the two criterion variables is attributable to the two criterion variables. In other words, almost half of the variation between 'high' and 'low' academic achievement is associated with 'high' and 'low' Nelson-Denny scores. This is a substantial degree of association or correlation, making Nelson-Denny scores very valuable predictors of academic success (page 1).

On the other hand, at least three studies reviewed indicated findings of no significant difference between test scores and scholastic achievement. In this regard, Whittaker (1971) was interested in finding out which of two courses, a machine-oriented reading course or a textbook-oriented reading course, more effectively improved reading rate and reading comprehension as measured by Nelson-Denny Reading Test scores. Subjects were 340 college freshmen whose pre-test scores were below 12.5. Whittaker reported that findings from the data revealed that although the control or textbook groups scored slightly higher in total reading than the experimental or machine groups at the beginning of both semesters, the experimental group (the machine-oriented approach) had only a slight advantage over the textbook-oriented approach. However, the t test at
the .05 level of confidence showed no significant difference was found.

Maxwell (1965) reports of a Reading and Study Skills Laboratory implemented by members of the Delta Phi Epsilon Sorority House who had expressed an interest in raising the academic rating of their sorority. The Nelson-Denny Reading Test was administered to the students at the beginning and end of the ten week period. Maxwell contended that results from the questionnaires revealed no measure of scholastic growth.

Washington (1970), in comparing academic performances of a group of students enrolled in the Reading Center (as a result of their Nelson-Denny Reading Test scores) and also enrolled in an English course during 1969-70 with another group of students deferred from the Center until the second semester, 1969-70, but enrolled in the same course, found that there was no significant difference in English grades for the enrolled and deferred groups.

Summary

The literature reviewed in this chapter has been divided into three main sections: (1) The Need for Skills' Remediation and Development in Reading at the College Level; (2) Prediction Methods and Scholastic Achievement; and (3) The Nelson-Denny Reading Test and Scholastic Achievement. These sections represent the development of the theoretical framework of this study.

It appears from the literature cited in the first section of this chapter that a reading treatment program which stresses developmental skills for today's college students would prove invaluable. In essence,
strengthening and expansion of reading skills would undoubtedly reflect a higher level of performance on national testing programs as The Scholastic Aptitude Test (SAT) and The American College Testing Assessment Program (ACT), as well as a higher level of performance on minimum competency tests, which appear to be used by more and more institutions.

Research that focused on prediction methods and scholastic achievement was also presented. Studies reviewed which included "Intellectual", "Nonintellectual" and "Combination" prediction methods suggested that colleges often use standardized and/or assessment tests for predicting scholastic achievement of college students.

The final section of this chapter presented insights into the relationship between The Nelson-Denny Reading Test and scholastic achievement. In this regard, literature suggested that the verbal section of the test is comparable to the verbal section of both, the SAT and ACT. Literature also suggested that discrepancies exist between students' reading ability as defined by The Nelson-Denny Reading Test and the readability of selected materials students are required to read for successful completion of their course requirement/s. Lastly, several findings indicating that a positive relationship exists between Nelson-Denny Reading Test scores and scholastic achievement were presented as well as a few with findings of no significant difference.
CHAPTER III
DESIGN OF THE STUDY

The college in this study uses Nelson-Denny Reading Test results as the criterion for predicting academic success in total subject achievement, especially in reading and writing courses. Brown, J, (1960) contends that the test provides a useful measure of reading in terms of vocabulary and comprehension. This study was designed to ascertain the relationship between students' scores on The Nelson-Denny Reading Test and their grade point averages for the first semester, 1976, total subject achievement (cumulative semester grade point average), reading grades, and writing grades. The research population, procedure, and treatment of the data are discussed in this chapter.

Research Population

The research population used in this study consists of two hundred seventy-five (275) freshmen. One hundred eighty (180) of the subjects are females and ninety-five (95) of the subjects are males. Approximately ninety-five (95) percent of the student enrollment at the historically Black college is Black. Thus, the research population in this study consists of 180 Black females, 94 Black males, and 1 white male. All 275 freshmen with which this study concerns itself scored a grade equivalency of less than twelfth grade (12.0) on The Nelson-Denny Reading Test for the first semester of 1976 and were consequently assigned to a course in remedial reading. The course, ED.09R, "Reading Center", is a non-degree credited course and meets for three hours weekly. However,
all freshmen are enrolled in a freshman-level writing course regardless of their score on the reading test. All 275 subjects were enrolled in the freshman-level writing course, G.E.10, "Freshman Writing", the first semester of 1976, as well as enrolled in ED.09R, "Reading Center".

Hamlett (1977) indicated that four instructors taught students enrolled in "Reading Center", ED.09R. For example, Instructor A taught eighty-one (81) students; Instructor B taught seventy-five (75) students; Instructor C taught seventy-three (73) students; and Instructor D taught forty-six (46) students. Fifteen instructors taught students enrolled in "Freshman Writing", G.E.10. For example, Instructor I taught thirty (30) students; II taught nineteen (19); III taught twenty-four (24); IV taught twenty-two (22); V taught sixteen (16); VI taught twenty (20); VII taught eleven (11); VIII taught twenty (20); IX taught twenty-five (25); X taught sixteen (16); XI taught one (1); XII taught fifteen (15); XIII taught twelve (12); XIV taught thirty-two (32); and XV taught twelve (12). Therefore, stratification for this "Reading Center Group" was delimited to those students enrolled in ED.09R, "Reading Center" and enrolled in G.E.10, "Freshman Writing".

An additional one hundred forty-six (146) subjects scoring a grade equivalency of 12.0 or greater on the test and enrolled in "Freshman Writing", G.E.10 the first semester of 1976, are included to determine what correlation, if any, exists between pre-test scores and grades in "Freshman Writing", G.E.10. Eighty-seven (87) females and fifty-nine (59) males comprise this group of students enrolled in "Freshman Writing". All of the 146 students are Black. Thus, of the 421 students enrolled in "Freshman Writing", two hundred sixty-seven (267) are Black females,
one hundred fifty-three (153) are Black males, and one (1) is a white male. As was previously indicated, fifteen "Freshman Writing" instructors taught both Reading Center and Non-Reading Center students. For this Non-Reading Center Group, Instructor I taught thirteen (13) students; Instructor II taught seven (7); Instructor III taught six (6); Instructor IV taught ten (10); Instructor V taught six (6); Instructors VI, VII, and VIII taught eleven (11), respectively; Instructor IX taught seventeen (17); Instructor X taught eight (8); Instructor XI taught eleven (11); Instructor XII taught four (4); Instructor XIII taught nine (9); Instructor XIV taught eighteen (18); and Instructor XV taught four (4). All subjects were first semester freshmen for the fall, 1976 school term at a suburban state college located in southeastern United States.

This particular college was chosen primarily for its cooperativeness, and the interest expressed by the President of the college, its Dean of Developmental Studies, its Acting Director of the Reading Center, and by faculty members at the college in the issue being investigated. In addition to the contribution that the findings of this study will make to the field of education, it will provide the selected college with updated information concerning the validity of using The Nelson-Denny Reading Test for programming students into academic placement.

**Procedure**

In this study, the researcher requested permission from the Dean, Division of Developmental Studies, and the President of the college to use the following data from students’ records: Pre- and post scores from The Nelson-Denny Reading Test; instructors’ grade sheets for ED.09R,
"Reading Center" and G.E.10, "Freshman Writing"; and cumulative fall semester, 1976, grade point averages for subjects used. A copy of the letter with its approval may be found in the Appendix of this study.

The researcher reviewed available records on freshmen enrolled at the college, first semester of 1976, to obtain the following data: Pre- and post- scores from The Nelson-Denny Reading Test; grades in both ED.09R, "Reading Center" and G.E.10, "Freshman Writing" by section; and cumulative fall semester, 1976, grade point averages. A frequency distribution was set up, and the researcher tallied the frequencies for subjects enrolled in each section of "Reading Center" and "Freshman Writing".

Having set up a frequency distribution, the researcher categorized the subjects into two groups, the Reading Center Group and the Non-Reading Center Group. The Reading Center Group consists of those students having assigned grades from the course in "Reading Center", pre-test scores from The Nelson-Denny Reading Test of less than 12.0, post-test scores, assigned grades from the course in "Freshman Writing", and cumulative first semester, 1976, grade point averages. All subjects falling into this group had complete data recorded as indicated in the aforementioned statement. The Non-Reading Center Group consists of those students having pre-test scores from The Nelson-Denny Reading Test of 12.0 or greater, assigned grades from the same sections of "Freshman Writing" as enrolled in by the Reading Center Group and cumulative first semester, 1976, grade point averages. This Non-Reading Center Group was included to determine what correlation, if any, exists between pre-test scores and grades in "Freshman Writing" for the total
421 students placed in either both the "Reading Center" and "Freshman Writing" or only in "Freshman Writing". All subjects falling into this group had complete data recorded as indicated in the aforementioned statement.

Treatment of the Data

The researcher elected to handle the statistical treatment of data used in this study through the computer program labeled SPSS (Statistical Package for the Social Sciences; Nie, Hull, Jenkins, Steinbrenner, and Brent, 1970).

Distribution tables were used to make data in this study more interpretable and convenient. Also, the following optional statistics were selected to accompany the frequency tables: Mean, and mode. Frequency tables yielded tallies for the following variables for Reading Center and Non-Reading Center Groups: Pre- and post-scores from The Nelson-Denny Reading Test, number of students taught per instructor, grades assigned per instructor, and cumulative fall semester, 1976, grade point averages.

The paired t-test was used to report any significance between the pre- and post-Nelson-Denny Reading Test results.

The Pearson product-moment correlation technique determined the correlations between selected variables and tested the level of significance for those correlations of at least .50. Selected pairs of variables in this study are: Pre-test scores with post-test scores from The Nelson-Denny Reading Test; pre-test scores with "Reading Center" grades; pre-test scores with "Freshman Writing" grades; pre-test scores with
cumulative first semester, 1976, grade point averages; post-test scores with "Reading Center" grades; post-test scores with "Freshman Writing" grades; and post-test scores with cumulative first semester, 1976, grade point averages. Statistics selected to be printed for each pair of variables for which a correlation coefficient was requested were: Cross-product deviations and covariances. In addition, means and standard deviations of the following variables were computed and printed: Pre- and post-test scores from The Nelson-Denny Reading Test, grades from "Reading Center" and "Freshman Writing", and cumulative first semester, 1976, grade point averages.

The chi-square test determined whether or not grades assigned to students enrolled in different sections of courses designed to improve skills in reading and writing were significantly different. For example, chi-square tests determined whether or not systematic relationships existed between the following pairs of variables for the Reading Center Group: "Reading Center" sections by "Reading Center" grade; "Freshman Writing" sections by "Freshman Writing" grade; both pre- and post-test scores from The Nelson-Denny Reading Test by both "Reading Center" and "Freshman Writing" grades; and post-test scores by cumulative fall semester, 1976, grade point averages, "Freshman Writing" grades, and "Reading Center" grades. Chi-square tests also were used to determine whether or not systematic relationships existed between the following pairs of variables for both Reading Center and Non-Reading Center Groups: "Freshman Writing" sections by Reading Center Group, "Freshman Writing" sections by Non-Reading Center Group, "Freshman Writing" grade by Reading Center Group, and "Freshman Writing" grade by
Non-Reading Center Group.

The regression lines of "Freshman Writing" grade and cumulative fall semester, 1976, grade point average on the pre-test score from The Nelson-Denny Reading Test were plotted for both Reading Center and Non-Reading Center Groups.

For the purpose of this study, the researcher selected to report as acceptable correlations, those of at least .50. Thus, acceptable correlations were tested for the level of significance and both, correlations and chi-square results will be reported at the .05 level of confidence.

Results based upon the computer statistical treatment of the data obtained in this study are presented, analyzed, and discussed in detail in Chapters IV and V of this thesis.
CHAPTER IV
ANALYSIS OF THE DATA

This chapter presents, analyzes, and interprets the results of this investigation into the relationship between selected students' scores on The Nelson-Denny Reading Test and their grade point averages for the first semester, 1976, total subject achievement (cumulative semester grade point average), reading grades, and writing grades. The findings of this study were accomplished via the SPSS computer program.

The study, analysis, and interpretation were guided by the major research question: What are the relationships between pre- and post-Nelson-Denny Reading Test scores of two hundred seventy-five freshmen and the percentages of grade point averages for the first semester, 1976, total subject achievement (cumulative semester grade point average), reading grades, and writing grades at a selected college? In addition, the following subsidiary question was examined: How does the arbitrary selection of the 12.0 grade score on The Nelson-Denny Reading Test reflect the likelihood for students being "Misclassified" who were arbitrarily assigned to the reading course based on that score?

The answer to these questions was derived through the following statistical procedures: Distribution tables, paired t-test, Pearson product-moment correlations, and cross tabulations. For the purpose of this study, the researcher elected to report acceptable correlations (at least .50) and chi-square results at the .05 level of significance.

Results of the data analyses are presented in four parts. The
first part includes a summary of scores from The Nelson-Denny Reading Test (Tables 1-3). Part II focuses on percentages of grades (Table 4), Pearson product-moment correlation results (Table 5), and a comparison of regression lines for Reading Center and Non-Reading Center Groups (Figures 4 and 5). Part III focuses on misclassification as analyzed using the chi-square statistical technique (Tables 6 and 7).

Discussions of the data will follow the presentation of the major research question and the subsidiary question. The chapter concludes with a summary of the findings presented.

Part I

Summary of Scores on The Nelson-Denny Reading Test

Table 1 represents a compilation of pre-test scores on The Nelson-Denny Reading Test for the Reading Center Group. Of the 275 students in this group, 51 (18.5%) had scores ranging from 6.0 - 6.4; 32 (11.6%) had scores ranging from 6.5 - 6.9; 17 (6.2%) had scores ranging from 7.0 - 7.4; 22 (7.9%) had scores ranging from 7.5 - 7.9; 26 (9.5%) had scores ranging from 8.0 - 8.4; 60 (21.9%) had scores ranging from 8.5 - 8.9; 18 (6.5%) had scores ranging from 9.0 - 9.4; 39 (14.2%) had scores ranging from 9.5 - 9.9; 5 (1.9%) had scores ranging from 10.0 - 10.4; 2 (.8%) had scores ranging from 10.5 - 10.9; 2 (.7%) had scores ranging from 11.0 - 11.4; and 1 (.4%) had a score which fell in the interval of 11.5 - 11.9.

Table 2 represents a compilation of pre-test scores on The Nelson-Denny Reading Test for the Non-Reading Center Group. Of the 146 students
### TABLE 1

**SUMMARY OF PRE-TEST SCORES ON THE NELSON-DENNY READING TEST FOR READING CENTER GROUP**

<table>
<thead>
<tr>
<th>Score</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>11.5 - 11.9</td>
<td>1</td>
<td>.4</td>
</tr>
<tr>
<td>11.0 - 11.4</td>
<td>2</td>
<td>.7</td>
</tr>
<tr>
<td>10.5 - 10.9</td>
<td>2</td>
<td>.8</td>
</tr>
<tr>
<td>10.0 - 10.4</td>
<td>5</td>
<td>1.9</td>
</tr>
<tr>
<td>9.5 - 9.9</td>
<td>39</td>
<td>14.2</td>
</tr>
<tr>
<td>9.0 - 9.4</td>
<td>18</td>
<td>6.5</td>
</tr>
<tr>
<td>8.5 - 8.9</td>
<td>60</td>
<td>21.9</td>
</tr>
<tr>
<td>8.0 - 8.4</td>
<td>26</td>
<td>9.5</td>
</tr>
<tr>
<td>7.5 - 7.9</td>
<td>22</td>
<td>7.9</td>
</tr>
<tr>
<td>7.0 - 7.4</td>
<td>17</td>
<td>6.2</td>
</tr>
<tr>
<td>6.5 - 6.9</td>
<td>32</td>
<td>11.6</td>
</tr>
<tr>
<td>6.0 - 6.4</td>
<td><strong>51</strong></td>
<td><strong>18.5</strong></td>
</tr>
</tbody>
</table>

\[ n = 275 \]

* Percent column does not total 100% due to rounding error.
### Table 2

**Summary of Pre-Test Scores on the Nelson-Denny Reading Test for Non-Reading Center Group**

<table>
<thead>
<tr>
<th>Score</th>
<th>Frequency</th>
<th>Percent</th>
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</thead>
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<td>15.0 - 15.4</td>
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<td>4.8</td>
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<tr>
<td>14.5 - 14.9</td>
<td>5</td>
<td>3.5</td>
</tr>
<tr>
<td>14.0 - 14.4</td>
<td>11</td>
<td>7.5</td>
</tr>
<tr>
<td>13.5 - 13.9</td>
<td>33</td>
<td>22.6</td>
</tr>
<tr>
<td>13.0 - 13.4</td>
<td>29</td>
<td>19.8</td>
</tr>
<tr>
<td>12.5 - 12.9</td>
<td>33</td>
<td>22.5</td>
</tr>
<tr>
<td>12.0 - 12.4</td>
<td>28</td>
<td>19.2</td>
</tr>
</tbody>
</table>

\[ n = 146 \quad 99.9\%^* \]

*Percent column does not total 100% due to rounding error.*
in this group, 28 (19.2%) had scores ranging from 12.0 - 12.4; 33 (22.5%) had scores ranging from 12.5 - 12.9; 29 (19.8%) had scores ranging from 13.0 - 13.4; 33 (22.6%) had scores ranging from 13.5 - 13.9; 11 (7.5%) had scores ranging from 14.0 - 14.4; 5 (3.5%) had scores ranging from 14.5 - 14.9; and 7 (4.8%) had scores which fell in the interval of 15.0 - 15.4.

Table 3 represents a summary of post-test scores on The Nelson-Denny Reading Test for the Reading Center Group. Of the 275 students in this group, 9 (3.3%) had scores ranging from 6.0 - 6.4; 5 (1.8%) had scores ranging from 6.5 - 6.9; 8 (3%) had scores ranging from 7.0 - 7.4; 14 (5.1%) had scores ranging from 7.5 - 7.9; 12 (4.4%) had scores ranging from 8.0 - 8.4; 22 (8%) had scores ranging from 8.5 - 8.9; 19 (6.9%) had scores ranging from 9.0 - 9.4; 25 (9.1%) had scores ranging from 9.5 - 9.9; 32 (11.7%) had scores ranging from 10.0 - 10.4; 25 (9%) had scores ranging from 10.5 - 10.9; 22 (8%) had scores ranging from 11.0 - 11.4; 21 (7.6%) had scores ranging from 11.5 - 11.9; 22 (8%) had scores ranging from 12.0 - 12.4; 18 (6.6%) had scores ranging from 12.5 - 12.9; 13 (4.7%) had scores ranging from 13.0 - 13.4; 7 (2.6%) had scores ranging from 13.5 - 13.9; and 1 (.4%) had a score which fell in the interval of 14.0 - 14.4.

In regards to the pre-test scores on The Nelson-Denny Reading Test for the Reading Center Group (Table 1), the mean was 8.0, with a mode of 8.5 - 8.9. This same group had a mean of 10.3, and a mode of 10.0 - 10.4 on the post-test (Table 3). The paired t-test showed that the difference between the means of the pre- and post-Nelson-Denny Reading Test scores was significant at all levels of confidence (.00). Hence, the mean for
TABLE 3
SUMMARY OF POST-TEST SCORES ON THE NELSON-DENNY READING TEST FOR READING CENTER GROUP

<table>
<thead>
<tr>
<th>Score Range</th>
<th>Count</th>
<th>Percent</th>
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<td>14.0 - 14.4</td>
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<td>.4</td>
</tr>
<tr>
<td>13.5 - 13.9</td>
<td>7</td>
<td>2.6</td>
</tr>
<tr>
<td>13.0 - 13.4</td>
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<td>4.7</td>
</tr>
<tr>
<td>12.5 - 12.9</td>
<td>18</td>
<td>6.6</td>
</tr>
<tr>
<td>12.0 - 12.4</td>
<td>22</td>
<td>8.0</td>
</tr>
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<td>11.5 - 11.9</td>
<td>21</td>
<td>7.6</td>
</tr>
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<td>11.0 - 11.4</td>
<td>22</td>
<td>8.0</td>
</tr>
<tr>
<td>10.5 - 10.9</td>
<td>25</td>
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<td>10.0 - 10.4</td>
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</tr>
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</tr>
<tr>
<td>6.0 - 6.4</td>
<td>9</td>
<td>3.3</td>
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</tbody>
</table>

\( n = 275 \)

* Percent column does not total 100% due to rounding error.
the pre-test score was 8.0 with a standard deviation of 1.33. The mean for the post-test score was 10.3 with a standard deviation of 1.90. Thus, results show a mean gain of 2.3 between the pre- and post-test scores for the Reading Center Group. Pre-test scores on The Nelson-Denny Reading Test for the Non-Reading Center Group (Table 2) yielded a mean of 13.2 with the maximum mode appearing in two intervals, 12.5 - 12.9 and 13.5 - 13.9.

Part II

Major Research Question: What are the relationships between pre- and post- Nelson-Denny Reading Test scores of two hundred seventy-five freshmen and the percentages of grade point averages for the first semester, 1976, total subject achievement (cumulative semester grade point average), reading grades, and writing grades at a selected college?

Pertinent to the major research question, the investigator employed the chi-square statistical procedure (Table 4) to determine the percentages of grade point averages for "Freshman Writing" and "Reading Center" courses, and cumulative semester grade point averages, first semester, 1976, for Reading Center Group, Non-Reading Center Group and the Total Group.

Table 4 indicates that the percentages of grade point averages for "Freshman Writing" earned by Reading Center Group were as follows: 1.8 (A's); .7 (A-'s); 3.3 (B+'s); 15.3 (B's); 11.3 (B-'s); 15.3 (C+'s); 25.8 (C's); 12.0 (C-'s); 2.5 (D+'s); 5.5 (D's); 1.5 (D-'s); 4.4 (F's); and .7 (I's). Percentages of grade point averages for "Reading Center" earned by Reading Center Group were as follows: 1.1 (A's); 3.6 (B+'s); 8.4 (B's); 1.8 (B-'s); 6.2 (C's); .4 (C-'s); .7 (D's); 37.5 (I's); and 40.4
TABLE 4

PERCENTAGES OF GRADE POINT AVERAGES FOR "FRESHMAN WRITING" AND "READING CENTER" COURSES, AND CUMULATIVE SEMESTER GRADE POINT AVERAGES, FIRST SEMESTER, 1976, FOR READING CENTER GROUP, NON-READING CENTER GROUP, AND TOTAL GROUP

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<tr>
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<th>A</th>
<th>Col %</th>
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<th>Col %</th>
<th>B+</th>
<th>Col %</th>
<th>B</th>
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<td>2.7</td>
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TABLE 4
Continued

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<td>Grade Point Average</td>
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<tr>
<td></td>
<td>I</td>
</tr>
<tr>
<td>------------------------------</td>
<td>---</td>
</tr>
<tr>
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<td>Cumulative Semester Grade Point Average</td>
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<td><strong>TOTAL GROUP</strong></td>
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</tr>
<tr>
<td>&quot;Freshman Writing&quot;</td>
<td>3</td>
</tr>
<tr>
<td>Cumulative Semester Grade Point Average</td>
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</table>
Table 4 also indicates that the percentages of cumulative semester grade point averages for this same group, Reading Center Group, were as follows: 1.2 (A-'); 5.4 (B+'); 3.7 (B'); 13.8 (B'); 23.4 (C+'); 12.0 (C'); 21.2 (C'); 13.6 (D+'); 2.6 (D'); 4.2 (D'); and 1.1 (F').

For the Non-Reading Center Group, Table 4 indicates that the percentages of grade point averages for "Freshman Writing" were as follows: 14.4 (A'); 11.6 (A-'); 8.9 (B+'); 24.7 (B'); 8.2 (B-'); 9.6 (C+'); 13.7 (C'); 2.7 (C'); 2.1 (D+'); 1.4 (D'); .7 (D'); 1.4 (F'); and .7 (I'). Table 4 further indicates that the percentages of cumulative semester grade point averages for this same group were as follows: 2.1 (A'); 10.5 (A-'); 19.6 (B+'); 3.5 (B'); 24.4 (B'); 16.8 (C+'); 2.1 (C'); 7.0 (C'); 6.3 (D+'); 1.4 (D'); 2.8 (D'); and 1.4 (F').

Table 4 indicates that the percentages of grade point averages for "Freshman Writing" earned by the Total Group were as follows: 6.2 (A'); 4.5 (A-'); 5.2 (B+'); 18.5 (B'); 10.2 (B'); 13.3 (C+'); 21.6 (C'); 8.8 (C'); 2.4 (D+'); 4.0 (D'); 1.2 (D'); 3.3 (F'); and .7 (I').

Table 4 further indicates that the percentages of cumulative semester grade point averages for the Total Group were as follows: .7 (A'); 3.0 (A-'); 8.6 (B+'); 4.7 (B'); 16.5 (B'); 20.5 (C+'); 8.7 (C'); 16.1 (C'); 10.4 (D+'); 2.1 (D'); 3.3 (D'); and 1.2 (F').

Pertinent to the major research question, the investigator employed the Pearson product-moment correlation (Table 5) statistical procedure to determine the extent of significant differences in the relationship between the following variables: Pre-test with post-test scores; pre-
TABLE 5

CORRELATION BETWEEN PRE- AND POST-TEST SCORES ON THE
NELSON-DENNY READING TEST AND GRADES IN "READING CENTER"
AND "FRESHMAN WRITING"

<table>
<thead>
<tr>
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<th>READING CENTER GROUP</th>
<th>NON-READING CENTER GROUP</th>
<th>TOTAL GROUP</th>
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<tr>
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<td>significance level</td>
<td>correlation</td>
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<tr>
<td>PRE-TEST SCORES WITH:</td>
<td>post-test scores</td>
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<td>.001</td>
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<td>&quot;Reading Center&quot;</td>
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<td>.001</td>
</tr>
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<td>grades</td>
<td>.12</td>
<td>.021</td>
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<td></td>
<td>cumulative semester</td>
<td>.29</td>
<td>.001</td>
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<td></td>
<td>grade point averages</td>
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<td>.001</td>
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<td>.001</td>
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<td>grade point averages</td>
<td>.001</td>
<td>.001</td>
</tr>
</tbody>
</table>

* Acceptable correlation (at least .50) as determined by investigator's criterion in this study.
test scores with "Reading Center" grades; pre-test scores with "Freshman Writing" grades; pre-test scores with cumulative first semester, 1976, grade point averages; post-test scores with "Reading Center" grades; post-test scores with "Freshman Writing" grades; and post-test scores with cumulative first semester, 1976, grade point averages, respectively.

Table 5 indicates that only two acceptable correlations (at least .50) existed among the selected variables used for determining relationships for Reading Center Group, Non-Reading Center Group, and the Total Group. The correlation between the pre- and post-Nelson-Denny Test scores of .52 is significant at the .001 level of confidence, and the correlation between the post-test scores and "Reading Center" grades of .64 is significant at the .001 level of confidence. Both acceptable correlations were found among the Reading Center Group. Thus, both acceptable correlations served to be moderate predictors of success; that is, Nelson-Denny Reading pre-test scores served to be a moderate or "average" predictor of the post-test scores, and Nelson-Denny Reading post-test scores correlated moderately with "Reading Center" grades. Findings further reveal that the moderately low coefficient correlations of .41 and .37 for total subject achievement and "Freshman Writing" respectively, which was indicated for the Total Group, suggest there is more than a fifty percent chance that students' grade point averages were not positively related to their pre-test scores on The Nelson-Denny Reading Test.

Regression lines of "Freshman Writing" and cumulative semester grade point average on pre-test scores from The Nelson-Denny Reading Test were plotted specifically to answer the subsidiary question
regarding the degree of predicted validity the test had in forecasting grade point averages (Figures 4 and 5). In this regard, the regression equation, \[ y' = [r_{xy} \frac{S_y}{S_x}]x - [r_{xy} \frac{S_y}{S_x}]\bar{x} + \bar{y} \] was used (Minium, 1970, p. 170).

Figure 4 indicates that the positive relationship between Nelson-Denny Reading pre-test scores and "Freshman Writing" grades is higher for the Reading Center Group than for the Non-Reading Center Group, as well as for the Total Group (Reading Center Group + Non-Reading Center Group = Total Group). Figure 5 indicates that the slope of regression lines for both Non-Reading Center Group and Total Group were similar, while the regression line for the Reading Center Group indicates that pre-test scores were more highly predictive of cumulative semester grade point averages.

Part III

Subsidiary Research Question: How does the arbitrary selection of the 12.0 grade score on The Nelson-Denny Reading Test reflect the likelihood for students being "misclassified" who were arbitrarily assigned to the reading course based on that score?

The chi-square statistical procedure was employed to determine the extent of significant difference of grade assignment for different sections of "Reading Center" and "Freshman Writing" according to post-test scores. In addition, cumulative first semester 1976 grade point averages were included to determine the extent of significant difference according to post-test scores. Table 6 indicates that 66 (30.8%) students having post-test scores of less than 12.0 received grades of less than 2.0 in "Freshman Writing", and 148 (69.2%) students having
FIGURE 4
COMPARISON OF REGRESSION LINES OF "FRESHMAN WRITING" GRADE ON THE PRE-TEST SCORE OF THE NELSON-DENNY READING TEST FOR READING CENTER, NON-READING CENTER, AND TOTAL GROUPS

Pre-test Score from The Nelson-Denny Reading Test

key: y variable = "Freshman Writing" Grade
x variable = Pre-test Score from The Nelson-Denny Reading Test
Grade: A=11, A-=10, B+=9, B=8, B-=7, C+=6, C=5, C-=4,
D+=3, D=2, D-=1,(F,I,E=0).
FIGURE 5

COMPARISON OF REGRESSION LINES OF CUMULATIVE SEMESTER GRADE POINT AVERAGE ON THE PRE-TEST SCORE OF THE NELSON-DENNY READING TEST FOR READING CENTER, NON-READING CENTER, AND TOTAL GROUPS

Key:
y = Cumulative Semester Grade Point Average
x = Pre-test Score from the Nelson-Denny Reading Test
TABLE 6
CROSS TABULATION OF POST-TEST SCORES ON THE NELSON-DENNY READING TEST BY GRADES IN "FRESHMEN WRITING" AND BY CUMULATIVE SEMESTER GRADE POINT AVERAGES

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<td>#</td>
<td>%</td>
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<td>&lt; 12.0</td>
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<td>30.8</td>
</tr>
<tr>
<td>≥ 12.0</td>
<td>7</td>
<td>11.5</td>
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</table>

* Significant at the .05 level.
** Significant at the .001 level.
post-test scores of less than 12.0 received grades of 2.0 or greater in "Freshman Writing". This table indicates that 7 (11.5%) students having post-test scores of 12.0 or greater received grades of less than 2.0 in "Freshman Writing", and 54 (88.5%) students having post-test scores of 12.0 or greater received grades of 2.0 or greater in "Freshman Writing". The reported chi-square for "Freshman Writing" grades by post-test scores was 23.3 which is statistically significant at the .05 level. Table 6 indicates that 101 (47.2%) students having post-test scores of less than 12.0 received cumulative semester grade point averages of less than 2.0, and 113 (52.8%) students having post-test scores of less than 12.0 received cumulative semester grade point averages of 2.0 or greater. Table 6 further indicates that 14 (23%) students having post-test scores of 12.0 or greater received cumulative semester grade point averages of less than 2.0, and that 47 (77%) students having post-test scores of 12.0 or greater received cumulative semester grade point averages of 2.0 or greater. The reported chi-square for cumulative semester grade point averages by post-test scores was 10.5 which is significant at the .001 level.

To answer the subsidiary question regarding percentages of the entire research population misclassified according to scores on The Nelson-Denny Reading Test, grade point averages in "Freshman Writing", and cumulative semester grade point averages, Table 7 was formulated. As can be seen in Table 7, 13 (8.9%) students received grades of less than 2.0 in "Freshman Writing"; 133 (91.1%) received grades of 2.0 or greater in "Freshman Writing"; 27 (18.5%) students received cumulative semester grade point averages of less than 2.0; and 119 (81.5%) received
TABLE 7

PERCENTAGES OF RESEARCH POPULATION MISCLASSIFIED ACCORDING TO SCORES ON THE NELSON-DENNY READING TEST, GRADE POINT AVERAGES IN "FRESHMAN WRITING", AND CUMULATIVE SEMESTER GRADE POINT AVERAGES

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</tr>
<tr>
<td></td>
<td>Row</td>
<td>%</td>
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<tr>
<td></td>
<td>13</td>
<td>8.9</td>
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<tr>
<td><strong>READING CENTER GROUP WITH:</strong></td>
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<tr>
<td>Post-test Scores &lt; 12.0</td>
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<td>30.8</td>
</tr>
<tr>
<td>Post-test Scores ≥ 12.0</td>
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<td>11.5</td>
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</tbody>
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cumulative semester grade point averages of 2.0 or greater. Table 7 further includes the statistics for the Reading Center Group as is presented in Table 6 and interpreted previously in this section, Part III of Chapter IV.

Summary

In this chapter, the investigator sought to ascertain the relationship between selected students' scores on The Nelson-Denny Reading Test and grade point averages for the first semester, 1976, total subject achievement, reading grades, and writing grades. Accordingly, distribution tables were used to answer the major research question and one subsidiary question.

Pertinent to the major research question regarding the relationship between Nelson-Denny Reading Test scores and grade point averages for the first semester, 1976, total subject achievement and writing grades for the Total Group, findings revealed that pre-test scores did not serve to be a valid predictor of academic success. The moderately low correlations of .37 and .41 for pre-test scores and "Freshman Writing" grades and for pre-test scores and cumulative semester grade point averages respectively, were not acceptable correlations as set forth in the established criterion by the investigator of this study. However, pre-test scores from The Nelson-Denny Reading Test did serve to be a moderate predictor of success for post-test scores, and the post-test scores correlated moderately with "Reading Center" grades for the Reading Center Group only.

In regard to the subsidiary question of "Misclassification", data
revealed that the relationship between the distributional percentages of "Freshman Writing" grades and cumulative semester grade point averages to Nelson-Denny Reading Test scores were statistically significant at the .05 and .001 levels of confidence, respectively for the Reading Center Group. In addition, data revealed that 27.4% misclassifications were prevalent among the Non-Reading Center Group.
CHAPTER V

SUMMARY, CONCLUSIONS, IMPLICATIONS, AND NEED FOR FURTHER RESEARCH

Chapter I provided a brief discussion relative to the reliance of a college upon the predictive validity of standardized tests for academic success in college. Academic support services as a means of providing for skills' remediation and development were discussed. An overview of The Nelson-Denny Reading Test was rendered. In addition, a profile of the selected college in this study was presented.

Chapter II presented a review of the literature and research which examined the notion that (1) skills' remediation and development are needed at the college-level; (2) prediction methods are used to forecast scholastic achievement, and (3) The Nelson-Denny Reading Test is used as a predictor of scholastic achievement.

Chapter III provided a description of the population, procedures for data collection, and procedures employed to analyze the data.

Chapter IV provided the statistical analysis of the data. The three statistical procedures used to analyze the data were: (1) measures of central tendency, (2) Pearson product-moment correlations, and cross tabulations.

This chapter will present the summary, conclusions, implications, and need for further research.

Summary

Standardized tests designed and most often used to forecast
academic success at the college level include The Scholastic Aptitude Test (SAT) ("The Scholastic Aptitude Test, 1976), The American College Testing Assessment Program (ACT) ("National Decline in Test Scores of the College Bound", 1976), and The Nelson-Denny Reading Test (Brown, James, 1960). However, the quest continues for such tests that will forecast accurately academic success regardless of whether an investigator is concerned with special subject achievement such as reading, and freshman-writing, and/or concerned with total subject achievement such as cumulative semester grade point average. The standardized test concerned with in this thesis is The Nelson-Denny Reading Test, used by the selected college in this study to assess reading skills and identify those students in need of reading skills' remediation and development.

In accord with the apparent need for better basic skills, more and more colleges and universities are implementing academic support services such as: individual/group tutoring, reading and study skills programs, writing courses, educational laboratories, academic counseling and advising, learning centers, computer-assisted instruction, and others. Hence, colleges are providing supportive services after assessing reading skills and identifying those students in need of skills' remediation using standardized tests such as The Nelson-Denny Reading Test (Allington, 1977; Call, 1977; Devirian et al., 1975; Lowe, 1967; Roueche, 1977; Sowande, 1977).

In general, Hamlett (1977) contends that the college's rationale for using The Nelson-Denny Reading Test is based on the assumption that a high positive correlation exists between The Nelson-Denny Reading Test
scores and grade point averages in total subject achievement and in communicative skills' courses. In this regard, after being admitted to the college, all freshmen are required to take the test. Those students who fail to attain a score of 12.0, twelfth grade, on the test are programmed into a remedial reading course where strengthening and expansion of reading skills are major objectives of the course. If the required reading level of 12.0 is not attained by the end of the first year, students may enter their next sequence of courses only if they are registered in the reading course. Therefore, findings from the study are deemed essential to the college's total reliance on a 12.0 level of performance on the test as an indicator of reading and writing success. In addition, colleges adhering to open admissions regulations, that is allowing free access to all in-state students who graduated from high schools, should reexamine the validity of the 12.0 minimum acceptance as an indicator of the placement of students in a remedial reading course. An assessment of the readability of required books for courses enrolled in by the subjects in this study may well reveal that the required books are written on a grade level lower than twelve, 12.0.

The literature indicates clearly that reading problems of college students are a concern of employers, parents, teachers, administrators, as well as others (Chaffee, 1976; Cunningham, 1976; Kokes, 1977; "Meaning of the Low Test Scores", 1976). Consequently, the aforementioned groups are among those demanding accountability for students' reading performances and calling for a move of "back-to-basics" in education for fear that students will not be able to cope successfully in college and/
or working environments, as well as with their everyday life goals and experiences. In essence, the lack of the development of study skills such as using basic references, interpreting materials, and applying findings in a usable form of organization, may well be a major reason for the failure of college students to perform better on national testing programs used by college-bound students (Bond and Tinker, 1967). For example, findings pertinent to students' performance on The Scholastic Aptitude Test revealed that within the period 1962-75, a downward trend in scores on the verbal section occurred (from 502-437) ("The Scholastic Aptitude Test", 1976); likewise, that a national decline in scores on the English test of the American College Testing Assessment Program occurred (from 18.7-17.6) ("National Decline in Test Scores of the College Bound", 1976). In addition, research pertinent to reading problems at the college level indicated that the need for college reading improvement has been recognized for more than fifty years (Staiger, 1955). In this connection, literature further revealed that the minimum competency movement, formal testing of the high school seniors' competencies for purposes of determining "pass-fail" decisions on his/her achievement in learning, is becoming widespread (Algra, 1978; Criscuola, 1978; Ebel, 1978; Til, 1978).

Literature pertinent to prediction methods and scholastic achievement suggests that it is unlikely that the educational target of the current decade, "Right-to-Read", (the improvement of the reading skills among 25 percent of the American population who lacked or were deficient in them), as proclaimed by the late Commissioner of Education, James Allen, will be met (Harman, 1976). Moreover, studies reviewed which
included "Intellectual", "Nonintellectual", and "Combination" prediction methods suggest that colleges often use standardized and/or assessment tests for predicting scholastic achievement of college students. In this regard, predictions are made that high risk students (that is those needing skills' remediation and development of reading skills as assessed by some form of "Intellectual" method) can improve upon their forecasted grade point average when a reading treatment such as the course in remedial reading is employed. Hence, in essence, it is predicted that academic support services serve to strengthen and expand reading skills. For example, research showed that a group having benefitted from a reading treatment program for a period of 15 weeks exceeded the predicted cumulative semester grade point average of a .7 increase (from 1.5 to 2.2); success was demonstrated by post test gains on vocabulary, comprehension, and rate by another group having benefitted from a reading treatment program (Thompson, 1976). On the other hand, studies reviewed which included "Nonintellectual" methods of predicting scholastic achievement such as a computer-based guidance system designed to help college students make informed and rational career decisions, taking into consideration high school type, sex, and socio-economic factors, suggest that such informal prediction methods can significantly increase the ability to predict grades beyond that accomplished with formal prediction methods (Norris and Cochran, 1977). In addition, literature pertinent to "Combination" methods revealed that reasonable predictions of freshmen grades are possible using several nonintellectual predictors as the Michigan State Self-Concept of Academic Ability Scale with an intellectual test as The Nelson-Denny Reading Test (Mangieri and Olsen,
In establishing the basis of this study, it was noted that The Nelson-Denny Reading Test was used to predict scholastic achievement (Brown, James, 1960). Therefore, it was deemed reasonable to review studies which investigated the comparability of test scores from The Nelson-Denny Reading Test to other standardized tests used by college-bound students; which analyzed students' miscues from the test items; which investigated the relationship between Nelson-Denny Reading Test scores and grades earned by college students enrolled in courses requiring a great amount of communicative skills as reading and writing courses; and which investigated students' cumulative semester grade point averages from predicted scores on the test.

Research pertinent to the comparability of test scores from The Nelson-Denny Reading Test, The Scholastic Aptitude Test, and American College Testing Assessment Program indicates that a positive relationship is prevalent for Nelson-Denny Reading Test scores and scores from both, Scholastic Aptitude Test, and the American College Testing Assessment Program (Warming, 1976).

At least one study revealed that miscue analysis, a diagnostic technique used to analyze "mistakes" made on The Nelson-Denny Reading Test, indicates that higher comprehension subjects used both semantics (meaning) and syntax (grammar) in oral reading of the test items while higher vocabulary subjects used syntax but did not seem to use semantics when answering the test items from The Nelson-Denny Reading Test (Ohaver, 1971).

Literature pertinent to Nelson-Denny Reading Test scores and
cumulative semester grade point averages indicating that a positive correlation exists, reported findings as both low positive and high positive correlations. For example, one study reviewed reported the correlation coefficients between cumulative semester grade point average and vocabulary scores on The Nelson-Denny Reading Test and between cumulative semester grade point average and comprehension scores were .224 and .111 respectively, ("Analysis of Nelson-Denny Reading Test Scores, Leeward Community College, Fall, 1975 New Students", 1976). Another study reported that Nelson-Denny Reading Test scores had an average correlation of .67 with cumulative semester grade point averages (Blai, Jr., 1970). On the other hand, at least three studies reviewed pertinent to Nelson-Denny Reading Test scores and cumulative semester grade point averages also indicates that no significant relationship exists (Maxwell, 1965; Washington, 1970; Whittaker, 1971).

The purpose of this study was to obtain information concerning the validity of The Nelson-Denny Reading Test scores as predictors of reading and writing success in a selected setting. More specifically, this study sought to determine the degree of predictive validity of the test in forecasting gradepoint averages in the two communication skills courses in which students were enrolled, "Reading Center" and "Freshman Writing", as well as for their cumulative fall semester, 1976, grade point averages.

This information was ascertained via The Nelson-Denny Reading Test scores and grades from the two communication skills courses followed by statistical analysis of the data.
Conclusions

Based on the analysis of the data, the following primary conclusions were drawn relative to the major research question and a subsidiary question that scores from The Nelson-Denny Reading Test and grades from "Reading Center" and "Freshman Writing" sought to answer. The conclusions are categorized into three areas: 1). The Reading Center Group, 2). The Non-Reading Center Group, and 3). The Total Group.

The Reading Center Group.

1. Pre-test results from The Nelson-Denny Reading Test served to be a moderate predictor of success for post-test scores. Hence, the correlation between the pre- and post-test scores was .52, which is significant at the .001 level of confidence.

2. The correlation between pre-test scores from The Nelson-Denny Reading Test and "Reading Center" grades ($r = .38$) was lower than that deemed acceptable by the investigator in this study.

3. The correlation between pre-test scores from The Nelson-Denny Reading Test and "Freshman Writing" ($r = .12$) was lower than that deemed acceptable by the investigator in this study.

4. The correlation between pre-test scores from The Nelson-Denny Reading Test and cumulative semester grade point averages ($r = .29$) was lower than that deemed acceptable by the investigator in this study.

5. The correlation between post-test scores from The Nelson-Denny Reading Test and "Freshman Writing" grades ($r = .26$) was lower that that deemed acceptable by the investigator in this study.
6. The correlation between post-test scores from The Nelson-Denny Reading Test and cumulative semester grade point averages \((r = .32)\) was lower than that deemed acceptable by the investigator in this study.

7. The selection of 12.0 score on The Nelson-Denny Reading Test reflected that Reading Center Group students were misclassified according to both, "Freshman Writing" grades and their cumulative semester grade point averages. (The relationship between the distributional percentages of "Freshman Writing" grades by post-test scores from The Nelson-Denny Reading Test was statistically significant at the .05 level; there were 77.2% misclassifications. The cumulative semester grade point averages by post-test scores from The Nelson-Denny Reading Test was statistically significant at the .001 level, that is 65% misclassifications).

The Non-Reading Center Group.

1. Pre-test results from The Nelson-Denny Reading Test did not serve to be a valid predictor of success for either "Freshman Writing" or cumulative semester grade point averages for the Non-Reading Center Group.

a). There was no correlation between pre-test scores from The Nelson-Denny Reading Test and "Freshman Writing" grades \((r = .00)\).

b). The correlation between pre-test scores and cumulative semester grade point averages \((r = .09)\) was lower than that deemed acceptable by the investigator in this study.
2. The selection of 12.0 score on The Nelson-Denny Reading Test reflected that only 8.9% of misclassifications in "Freshman Writing" existed and only 18.5% of misclassifications for cumulative semester grade point averages existed.

The Total Group.

1. Pre-test results from The Nelson-Denny Reading Test did not serve to be a valid predictor of success for either "Freshman Writing" or cumulative semester grade point averages for the total group of students in this study.
   a) The correlation between pre-test scores from The Nelson-Denny Reading Test and "Freshman Writing" grades (r = .37) was lower than that deemed acceptable by the investigator in this study.
   b) The correlation between pre-test scores from The Nelson-Denny Reading Test and cumulative semester grade point average (r = .41) was lower than that deemed acceptable by the investigator in this study.

2. The selection of 12.0 score on The Nelson-Denny Reading Test reflected the likelihood for students being misclassified according to "Freshman Writing" grades and to their cumulative semester grade point averages (8.9% misclassifications for "Freshman Writing" grade and 65% for cumulative semester grade point averages for Non-Reading Center Group; 77.2% misclassifications for "Freshman Writing" grade, and 65% for cumulative semester grade point averages for Reading Center Group). In addition, the following conclusions were drawn from an analysis of data pertinent to the
major research question and a subsidiary question:

a). The Nelson-Denny Reading post-test scores were moderately related to "Reading Center" grades. Hence, the correlation between post-test scores and "Reading Center" grades was .64, which is significant at the .001 level.

b). An analysis of the data does not support the assumption made by Hamlett (1977) regarding a high positive correlation between scores from The Nelson-Denny Reading Test and grades in the reading and writing courses.

**Implications of the Study**

One major implication of the study is that a reading treatment program serves to increase the level of performance on The Nelson-Denny Reading Test as reflected by post-test scores. Regression lines of "Freshman Writing" and cumulative semester grade point average on pre-test score from The Nelson-Denny Reading Test for the Reading Center Group would have been lower if the Reading Center Group had not benefitted from the reading treatment. Hence, this supports the literature that reveals a positive correlation between Nelson-Denny Reading Test scores and scholastic achievement. All students enrolled in "Reading Center", the reading treatment program, had lower than 12.0 pre-test scores on The Nelson-Denny Reading Test. In this regard, the mean score was 8.0 (eighth grade) with the mode of 8.5-8.9. Findings resulting from the post-test scores and final grades in the reading course indicate that higher scholastic achievement was attained than was expected. Hence, the degree of predictive validity of the test
remains uncertain, for the remedial reading treatment served to strengthen and expand reading skills of students enrolled in "Reading Center".

In regard to the high percentage of misclassifications, the second major implication of this study is that colleges/universities should not use a total reliance of a 12.0 score on The Nelson-Denny Reading Test for programming students into a course for remedial treatment; rather, colleges might well administer the test to freshmen and use it as a diagnostic tool for identifying reading skills needing development. A closely monitored performance-based criterion of reading skills to determine the required level of reading necessary for "adequate" performance in offered courses should be implemented by the college if a minimum standard on reading tests must be set. Moreover, findings pertinent to the suggested monitored performance-based criterion may well indicate that the twelfth grade level of reading as reflected by The Nelson-Denny Reading Test may be a higher minimum standard than is needed to do "B" or "C" level work in particular courses offered by the college.

Further Discussion

The broader implications of this investigation may be as important as the specific and immediate findings. Unfortunately, this investigator does not have the data to support the following implications of the study, but personal experiences working as: A student assistant (tutor) in a college's reading center; a public school teacher in several states; a research assistant in education; and those experiences
encountered relevant to this investigation, may well substantiate the following, broader implications.

First, the selected college in this study and other institutions of higher education which are complying with the open admissions' regulation are due a note of thanks from all adhering to the notion that these (marginal) students like others, deserve a chance to utilize college-level resources and become an active member of the college's student body. In this regard, colleges have the responsibility of providing their students with necessary skills needed to obtain at least a functional, instructional reading level that will assist their students with survival skills needed to remain in good academic standing while at college. Thusly, colleges should concern themselves with providing for individualistic differences.

Secondly, since there is a wide range in reading ability among entering freshmen, especially at colleges also adhering to open admissions' regulation, it is important that all freshmen be screened in order to better provide for individualistic differences in reading. In other words, to place freshmen as a group would imply that they all need the same skills, at the same levels, at the same time. In this connection, the screening process should be designed carefully, considering the following components: high school grade point average (GPA); scores from the College Entrance Examination Board (CEEB), either The Scholastic Aptitude Test (SAT) or The American College Testing Assessment Program (ACT), a standardized test of reading achievement which serves diagnostic purposes such as The Nelson-Denny Reading Test; comments from the following: high school graduates' guidance counselors
regarding personality factors relevant to students' academic performances, and potential applicants during their personal interview with the college/s admissions staff. Thusly, the screening process for academic placement of freshmen should not rest upon one criterion, rather a combination of the aforementioned factors should be considered. Furthermore, a college's total reliance on scores from one standardized test clearly disregards pertinent data on prospective applicants obtained from intellectual and/or nonintellectual instruments. Again, this investigator adheres to the notion that results from a combination of intellectual (formal) and nonintellectual (informal) instruments are needed when considering a criteria for academic placement of college freshmen, especially those colleges adhering to the open door admissions regulation.

Thirdly, available academic assistance in reading should be rendered to all freshmen; that is, those needing assistance in one or a combination of the following areas: remedial, corrective, developmental, and enrichment. It is the viewpoint of this investigator that the assignment of freshmen for a reading treatment such as The Reading Center course used in this study should be geared toward those students needing remedial and corrective assistance based upon an arbitrary formula such as the following one:

\[
\text{Remedial Reading Treatment, if:}
\]

High School GPA = less than 2.0 on a 4.0 scale  
Nelson-Denny Reading Test scores = less than 11.0  
Other standardized test scores (aptitude tests) = below the national "average" for previous year  
Results from Nonintellectual instruments = negative
Corrective Reading Treatment, if:

High School GPA = less than 2.0 on a 4.0 scale
Nelson-Denny Reading Test scores = less than 12.0
and greater than 10.9
NOTE: OTHER FACTORS SAME AS INDICATED IN REMEDIAL
READING TREATMENT (ABOVE)

Freshmen scoring at least 12.0 on The Nelson-Denny Reading Test, having
at least a high school GPA of at least 2.0 on a 4.0 scale, and having
at least "average" scores on CEEB, SAT or ACT should be encour-
eged to engage in developmental and enrichment activities offered by
the reading program.

Lastly, the time period designated for a reading treatment such
as the course, The Reading Center, should be contingent upon the level
of growth in reading as determined by reading gains between pre- and
post-test scores from The Nelson-Denny Reading Test or a comparable
test of reading achievement, and students' cumulative semester grade
point average. Colleges might well formulate minimum standards for
exiting the reading treatment program, considering the students' high
school GPA and scores from selected tests as indicated in the afore-
mentioned criteria as set forth by the investigator regarding academic
placement of college freshmen.

Need for Further Research

Based on the findings of this study, the following recommendations
for further research are suggested:

1. A study that attempts to ascertain a comparison of Nelson-
Denny Reading Test scores to grades in reading and writing
courses before and after a reading treatment program and
using relatively equalized pre-test scores at the beginning of the study.

2. Replication of this study with a relative equal distribution of Nelson-Denny Reading pre-test scores from a randomized sampling of subjects from other regions of this nation having similar characteristics to the population of this study to determine whether or not there will be a significant difference in scholastic achievement as reflected by Nelson-Denny Reading Test scores and grades from reading and writing courses, as well as for cumulative semester grade point averages in other sections of the United States.


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*Selected College, Notes 1 and 2*  
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THE APPENDIX

LETTER OF PERMISSION TO USE SUBJECTS FOR THE STUDY
Dear Dr. Hamlett:

I am writing to request permission to use reading scores of students enrolled in the college's Reading Clinic, 1976-77.

I am a doctoral candidate at University of Massachusetts (Amherst) and am planning on writing a dissertation on a topic utilizing this data. More specifically, I would like to find out if there is a correlation between reading scores and grades made in selected high enrollment freshman courses requiring a large amount of communicative skills.

Names of students enrolled in the Clinic will be kept confidential and will not be used in the dissertation. Findings of this study will be shared with you, if you so desire.

Thanking you for all assistance you are able to render.

Sincerely,

Shirley N. Washington

Data which will be provided researcher (test scores, course grades, no names) does not violate the Buckley Amendment.