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THE RELATIONSHIP BETWEEN SCORES OF THE NELSON-DENNY
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AMERICAN COLLEGE FRESHMEN

DISSERTATION

Presented in Partial Fulfillment of the Requirements for
the Degree Doctor of Philosophy in the Graduate
School of The Ohio State University

By

John Wesley Joyner

* * * * * * *

The Ohio State University
1972

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ACKNOWLEDGMENTS

This dissertation is dedicated to my wife, Edith, daughters, Monika and Simone, and my mother-in-law, Alice and grandmother-in-law, Gran, all of whom each in their unique way, have made it possible for me to write it. In addition, however, there are many others who by their interest or encouragement, advice or criticism, have contributed significantly to it. Personally, the most rewarding aspects of this experience lies in the professional growth as felt by the writer. I wish to express a sincere and deep feeling of gratitude to my committee chairman, Dr. Joseph Quaranta, and members of the Reading Committee, Dr. Richard Kelsey and Dr. James Wigtill, for their advice, encouragement and assistance in writing this study.

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FIELDS OF STUDY

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INTRODUCTION

The marches of Dr. Martin Luther King and the Southern Christian Leadership Conference beginning in the late 1950's and the numerous sit-in protests of the early and mid-1960's dramatized the general civil inequality of Black Americans. It was not, however, until the violence, death, and destruction in Watts in 1965, the waves of ghetto rebellions in 1966, and the major disasters of Detroit, Newark, Cleveland, and numerous other cities that the educational, economical and political power structures felt a need for constructive action to bring more disadvantaged citizens into the mainstream of middle-class-hood.

Following the peaceful sit-ins to the destruction of Watts, some educators in policy-making positions in government felt that the problem was educational in nature. Their reasoning was that if Afro-American students in disadvantaged situations could be reached soon enough, they would develop academically and would not exhibit the bitterness and frustrations of dropouts who were ready
to make an all out assault on the entire economic system. Head Start Programs got underway and Neighborhood Youth Corps Programs were implemented to keep the cities cool during the summer months. Grants, loans and work-study programs were subsidized by the government, apparently in the hope that the problem-making student would get in school and stay there until his values and outlooks were changed to conform to middle class norms and he became assimilable into the white college culture.

The Southern Regional Education Board recommended that each senior college and university adopt a "high risk" quota for the admission of disadvantaged students and provide remedial and compensatory programs as necessary to raise these students to standard levels of academic performance.

In response to the Southern Regional Education Board Commission's recommendation, Egerton (1968) wrote that:

Just how complex the question really is can be quickly discovered by even the most causal exploration. Terms like "high risk", "quota" and "disadvantaged" are relative, meaning different things to different people. The effectiveness and value of remedial and compensatory programs are unproved and in dispute. Standardized tests to measure aptitude, achievement, ability or intelligence are both praised and condemned in heated arguments. And underlying all of this is an unexplored no-man's land which separates
the prevailing culture of the American college--white, middle class and reasonably well-schooled--from the masses of citizens whose race or social class, or both, identifies them as "different".

Test critics (Clark and Plotkin, 1963; Green and Farquhar, 1965; Cherdack, 1970 and Borup, 1971) argue that aptitude and achievement tests do not have predictive validity for Afro-American students since such tests are constructed by white middle-class educators to assess achievement skills of white middle-class students to succeed in college curricula designed for a white middle-class society and taught by white middle-class instructors.

Events over the past decade have moved various colleges and universities to grant admission to more Black students from disadvantaged environmental situations. With these new admission criteria, some educators are quick to cry, "...you are lowering the standards." Against what standard is the student to be compared? For whose benefit has the standard been defined? The questions raised here should renew attention to validation procedure. The notion of "standardization group" merits particular attention. The art of guessing and instructions to inhibit or to encourage it need critical examination. These variables are singled out on the basis of professional and public evidence that the disadvantaged relative to the advantaged do in fact demonstrate lower reading skills. This would suggest that a
disadvantaged youngster is not likely to be responsive to subtle verbal cues present in the test, and items written for clarity of expression for the advantaged pupil may be as sterile and uninviting to the disadvantaged pupil as the use of ghetto slang to a citizen in the rural community of Snowville, Nebraska.

Schwarz (1971) wrote:

The need is for more complete information about the similarities and diversities of experience typical of applicant groups at various educational levels—for preliminary research that can guide item selection. Not enough is known, for example about the differences in English usage among American sub-cultures to evaluate their possible implications for the design of verbal aptitude tests.

Thorndike (1971) commenting on the progress of testing over the span of the last twenty years sees it to the likes of an iceberg. He writes, "The part that shows as change is the one-ninth of the berg that is above the water level, and the part that remains much the same is the vast under water bulk." Thorndike's statement appears to merit some validity when one finds reviews of the first (1951) and second (1971) editions of Educational Measurement reveals impressively the continuity of thorough and comprehensiveness of coverage. Nevertheless, in spite of the scholarship and critical inquiry in the area of testing done by researchers of competence and
integrity, testing of Afro-American children can be claimed by no one to be a satisfactory accomplishment.

This investigation grew out of interest in the worth of the Nelson-Denny Reading Test which was administered to minority freshmen students in the Freshman Foundation Program at The Ohio State University. As stated by test critics, the need to investigate the validity of all types of standardized tests when applied to any sub-cultural groups when such groups for the most part were not included in the normalization of the instruments, is of paramount importance. In too many instances an erroneous assumption is made that if a test is valid for an entire population it is valid for each subgroup of that population. An attempt will be made in this study to test this assumption relative to the Nelson-Denny Reading Test. Will the Nelson-Denny Reading Test and cumulative first year grade point averages correlate significantly for selected Afro-American freshmen students in a special program at a large integrated university?

Is there a significant relationship between the "Total" Nelson-Denny Reading Test scores and general levels of academic performance for selected Afro-American freshmen students? Can specific patterns of reading strengths and weaknesses relative to general levels of academic performance of Afro-American college freshman students who are enrolled in a compensatory program be identified?
It appears logically that answers to the above questions would assist in determining the usefulness of the Nelson-Denny Reading Test when applied to a select group of Afro-American college freshmen students.

Statement of the Problem

This study investigated the relationships between sub-test scores on vocabulary, comprehension and reading rate of the Nelson-Denny Reading Test relative to first year academic performance of selected Afro-American freshmen students enrolled in a major integrated institution of higher education.

Objectives of the Study

1. To determine the relationship between the "Total" percentile rank scores on the Nelson-Denny Reading Test and cumulative first year grade point averages of selected Afro-American male college freshmen students.

2. To determine the relationship between the "Total" percentile rank scores on the Nelson-Denny Reading Test and cumulative first year grade point averages of selected Afro-American female college freshmen students.
3. To determine the relationship between the "Total" percentile rank scores on the Nelson-Denny Reading Test and cumulative first year grade point averages of selected Afro-American male and female college freshmen students.

4. To determine the relationship between the "Total" percentile rank scores on the Nelson-Denny Reading Test and four levels of cumulative first year grade point averages earned by selected Afro-American college freshmen students.

5. To examine the relationship between sub-test percentile rank scores and four levels of cumulative first year grade point averages earned by selected Afro-American college freshmen students.

6. To determine if the Nelson-Denny Reading Test is a useful measuring instrument to "predict" general levels of first year academic achievement of selected Afro-American college freshmen students.

**Hypotheses**

In view of the stated objectives, the study was organized into four phases. The hypotheses are grouped to correspond to the stated objectives of the study.
Three null hypotheses were stated in Phase I, which dealt with correlation of the "Total" percentile rank scores on the Nelson-Denny Reading Test and cumulative first year grade point averages of the subjects (by sex, males, females and total group).

Six null hypotheses were stated in Phase II which dealt with the relationship of the total percentile rank scores on the Nelson-Denny Reading Test and four levels of general academic achievements as defined by cumulative first year grade point averages of the subjects in the study. The four levels of cumulative first year grade point averages were sub-grouped in the following ranges:

- Range I -- 0.00 - 1.99
- Range II -- 2.00 - 2.49
- Range III -- 2.50 - 2.99
- Range IV -- 3.00 - 4.00

Relative to the stated objectives and examination of Phase I and II, nine research hypotheses were formulated for testing:

1. The "Total" sub-test percentile rank scores on the Nelson-Denny Reading Test will not correlate at the .05 level of significance with cumulative first year grade point averages of selected Afro-American male college freshmen students.
2. The "Total" sub-test percentile rank scores on the Nelson-Denny Reading Test will not correlate at the .05 level of significance with cumulative first year grade point averages of selected Afro-American female college freshmen students.

3. The "Total" percentile rank scores on the Nelson-Denny Reading Test will not correlate at the .05 level of significance with cumulative first year grade point averages of selected Afro-American male and female college freshmen students.

4. Male and female students in range IV (3.00-4.00 CGPA) will have "Total" percentile rank scores on the Nelson-Denny Reading Test significantly (.05 level) higher than male and female students in Range I (0.00-1.99 CGPA).

5. Male and female students in range IV (3.00-4.00 CGPA) will have "Total" percentile rank scores on the Nelson-Denny Reading Test significantly (.05 level) higher than male and female students in range II (2.00-2.49 CGPA).

6. Male and female students in range IV (3.00-4.00 CGPA) will have "Total" percentile rank scores on the Nelson-Denny Reading Test significantly (.05 level)
higher than male and female students in range III (2.50-2.99 CGPA).

7. Male and female students in range III (2.50-2.99 CGPA) will have "Total" percentile rank scores on the Nelson-Denny Reading Test significantly (.05 level) higher than male and female students in range I (0.00-1.99 CGPA).

8. Male and female students in range III (2.50-2.99 CGPA) will have "Total" percentile rank scores on the Nelson-Denny Reading Test significantly (.05 level) higher than male and female students in range II (2.00-2.49 CGPA).

9. Male and female students in range II (2.00-2.49 CGPA) will have "Total" percentile rank scores on the Nelson-Denny Reading Test significantly (.05 level) higher than male and female students in range I (0.00-1.99 CGPA).

The third and fourth phases of the problem involved an examination of the number and percent of subjects in subgroup academic range levels earning differential Nelson-Denny scores in three sub-test areas and at three percentile rank levels on the Reading Test.

1. The number and percent of male and female students in range IV (3.00-4.00 CGPA) were examined relative
relative to those who earned:

a. **no** sub-test scores below the 30th national percentile
b. scores in one of three sub-test areas below the 30th national percentile
c. scores in two of three sub-test areas below the 30th national percentile
d. scores in all three sub-test areas below the 30th national percentile

2. The number and percent of male and female students in range III (2.50-2.99 CGPA) were examined relative to those who earned:

a. **no** sub-test scores below the 30th national percentile
b. scores in one of three sub-test areas below the 30th national percentile
c. scores in two of three sub-test areas below the 30th national percentile
d. scores in all three sub-test areas below the 30th national percentile

3. The number and percent of male and female students in range II (2.00-2.49 CGPA) were examined relative to those
who earned:

a. no sub-test scores below the 30th national percentile
b. scores in one of three sub-test areas below the 30th national percentile
c. scores in two of three sub-test areas below the 30th national percentile
d. scores in all three sub-test areas below the 30th national percentile

4. The number and percent of male and female students in range I (below the 2.00 CGPA) were examined relative to those who earned:

a. no sub-test scores below the 30th national percentile
b. scores in one of three sub-test areas below the 30th national percentile
c. scores in two of three sub-test areas below the 30th national percentile
d. scores in all three sub-test areas below the 30th national percentile

5. The number and percent of male and female students in range IV (3.00-4.00 CGPA) were examined relative to those who earned:
6. The number and percent of male and female students in range III (2.50-2.99 CGPA) were examined relative to those who earned:
   a. scores above the 50th national percentile
   b. scores above the 30th national percentile
   c. scores below the 30th national percentile

7. The number and percent of male and female students in range II (2.00-2.49 CGPA) were examined relative to those who earned:
   a. scores above the 50th national percentile
   b. scores above the 30th national percentile
   c. scores below the 30th national percentile

8. The number and percent of male and female students in range I (0.00-1.99 CGPA) were examined relative to those who earned:
   a. scores above the 50th national percentile
   b. scores above the 30th national percentile
   c. scores below the 30th national percentile
Definition of Terms

The terminology used for reading clarification was chosen to reflect the characteristics of the subjects used in this study and the operational application of the measuring instrument applied to them. The terms are defined as follows:

Afro-American.—An American citizen whose ancestry (one or more generations) were native or inhabitants on the continent of Africa. Other racial/ethnic names commonly used to identify Afro-Americans are: Negroes, minorities, Blacks, colored, ghetto and inner city people.

Selected.—Selected is defined as the process of distinguishing those students who enrolled in the Freshman Foundation Program and who were chosen on the basis of their ethnic/racial background.

Freshman Foundation Program.—The Freshman Foundation Program is a concept in student development designed to increase the possibility of college success for minority students. Cooperating with the Admissions Office and the Office of Student Financial Aids, the Office of Minority Affairs recruited approximately 500 minority students for Fall Quarter, 1971. William H. Watson, Associate Dean of University College and Coordinator of Orientation and Counseling for the Office of Minority Affairs, is director of the program. Eighty-five
percent of the recruited students are Black; the remainder are Appalachian White, Puerto Rican, and other minorities.

The program parallels the regular freshman college program, and leads to the same objective—successful completion of a baccalaureate degree. The essential difference is that the Foundation approach is more personalized and provides for its students additional supportive services which are not readily available, nor, in many cases, needed, in the regular college program.

Through work with the Office of Student Financial Aids, OMA successfully arranged financial packages for the students based on need. The program provided a special five-day orientation program which supplemented the University's regular freshman orientation program. Additionally, Freshman Foundation offers supportive counseling and guidance services, Study Skills Seminars, tutorial services, and specially designed mathematics and English courses. By providing such special supportive services to these students, the program is aimed at increasing their chances for success at The Ohio State University and in later life.

Nelson-Denny Reading Test.—The Nelson-Denny Reading Test is a test used to measure academic skills in terms of vocabulary knowledge, comprehension capability and rate of reading. It was designed to furnish helpful, objective information for academic
achievement prediction, screening and broadly diagnostic purposes.

(See Description of the Instruments in Chapter III for further details on the Nelson-Denny Reading Test).

"Total" Nelson-Denny percentile rank score. — The "Total" Nelson-Denny percentile rank score is an average of the combined weight of the vocabulary sub-test score plus the comprehension sub-test score.

50th national percentile total score on the Nelson-Denny Reading Test. — The 50th national percentile total score on the Nelson-Denny Reading Test is the reading level of abilities defined in this study with above average academic achievement level.

30th national percentile total score on the Nelson-Denny Reading Test. — The 30th national percentile total score on the Nelson-Denny Reading Test is the "cut-off" point chosen for this study below which a high probability exists of the student experiencing a reading problem.

Significance of the Problem

A study of the relationship between scores on the Nelson-Denny Reading Test relative to selected Afro-American male and female college freshman students is deemed worthy of investigation for the following reasons:
The Nelson-Denny Reading Test is currently used at The Ohio State University and other institutions without knowledge of its validity when applied to Afro-American students enrolled in a special program.

Agents of supportive service programs for disadvantaged students are in search of instruments more valid than those currently used.

Controversy still rages about the use of aptitude and achievement tests when applied to Afro-American students.

The recruitment of Afro-American students from disadvantaged situations continues without good measuring tools which can give a good indication of probable success in college.

Special programs at colleges and universities across the nation have directed their efforts toward developing and refining approaches to the delivery of personalized supportive services in the interest of Afro-American students from disadvantaged situations.

An examination of the usefulness of the Nelson-Denny Reading Test may stimulate research on other tools to assist college students from poor socio-economic backgrounds. This importance lies in the future increase of minority students who will be entering higher education across the nation.
The Office of Minority Affairs at Ohio State University developed a recruitment program which enrolled about 700 freshmen minority students for the 1972-73 academic year. Program planning includes conceiving and implementing a thorough evaluation component designed to facilitate productive change in existing programs, to provide important data in establishing new programs, and to document advocacy for increased institutional commitment. The importance of this study is an effort hopefully that may assist academic advisors as well as counselors who work with students with problems in reading, learning and study skills. Hopefully, this study will assist them to guide students toward a more intelligent attack upon their academic problems. It might suggest an innovative approach to tutoring, type of supportive programs needed, and the kind of skills and personnel required to implement special educational services.

Limitations of the Study

The major limitation of this study lies in the host of potential subjects who would not be included in the study. Approximately one-half of the total target population did not voluntarily write the Nelson-Denny Reading Test and about one-third of those who took the test were lost from the study because of unavailable grades in at least one of the three quarters during
the first academic school year.

**Organization of the Report**

In Chapter II, relevant literature and research related to the study are reviewed. The methodology, instrumentation, and statistical procedures are specified in Chapter III. Findings obtained from the analysis of statistical data will be reported in Chapter IV. The summary, conclusions, implications and recommendations are presented in Chapter IV.
CHAPTER II

REVIEW OF THE LITERATURE

Chapter II deals with a review of the literature in which the writer felt it important to include three sections which are relevant to the problem.

Section 1 provides a general picture of the Afro-American student who has been encouraged and recruited to higher education. This picture in many ways reflects how he feels, thinks and acts in today's educational setting. An effort was made to include the educational background and some of the basic learning problems of the Afro-American student as reported by several researchers. Dialect and cultural differences noted through the research of several authors was included in this section of the literature review. Section 2 deals with validation and prediction of standardized instruments when used in testing Afro-American students. This section is relevant to the problem because of an array of events which are related to the dilemma. Critics of testing have argued persuasively that the tests are invalid or discriminate unfairly when applied to Afro-
Americans. Section 3 consists of selected studies which were closely related to the problem. This section gives an account of the Nelson-Denny Reading Test scores and their relationship with scholastic achievement.

**The White Culture And The Black Student**

Prior to the days of integration the visible minority groups in America assumed the superiority of the culture of the white middle class. To try to become a major participant in the white middle class culture was the thing to do. Any movement toward that culture in terms of language, skills, and technology was applauded by the Black community.

Following widespread school integration in the late 1950's and early 1960's, the experiences of the black student in the white schools led to his re-evaluation of the white culture. College students began to live in dormitories on an intimate level with white students and started to see their overall culture from a different perspective. The glamour of the white culture soon wore off, and the problems and desires of the black student shifted from the superficialities of interracial dating and social intercourse to
the more fundamental issues of the ghetto and the suburbs, the maldistribution of wealth, status, and opportunity in this country.

Under the impact of reams of research exposing the problems of suburbia (Packard, 1959 and 1962; Whyte, 1956) and tomes of extremist and Marxist oriented literature exposing the evils of capitalism and its tendency to condone racism (Fanon, 1965, 1966 and 1967; Williams, 1966; Cox, 1948), the ghetto student, armed with first hand knowledge of white society, started to question seriously whether this was what he wanted, whether this was what education and "culture" were all about. He saw in white society inhumanity, inconsideration, cheating, lying, backbiting, alienation, and all of the problems he had been told were associated with black society. Now, instead of seeing affluent suburbia as something which he was seeking to achieve, its crassness and its brilliance started to bespeak inhumanity rather than something with which he could identify. He soon reasoned that new homes in the suburbs built by whites meant that blacks and other minority groups would have older homes in the inner city. He was exposed to sophisticated analyses of race relations and came to believe that the "system" was responsible for his poverty (that is, the poverty of his group) and the denigration and defeatism of his parents. He soon rejected the legitimacy of movement to the suburbs and consequent removal from
his own people and felt pangs of conscience about abandoning them to the defeatism of the ghetto. Now instead of seeking to flee from the ghetto, he took it as his legitimate task to return and make it a livable place for the black masses. Now, at the same time that he minimizes—and in some cases rejects—the magnetism of the white culture, the inner city student turns back to romanticize the ghetto culture. The ghetto youth now prefers the language of the ghetto to that of the educated middle class. Very often he refuses to concede that the non-standard English which he speaks is something which needs correcting. Even vulgarity, condonable among the bitterest element of the ghetto, may challenge standard English for legitimacy in the thinking of the ghetto student. He may in fact see no reason for change since he consciously prepares, expects, and is expected by the white culture to be a resident of the ghetto. He expects nothing from the larger culture, and anything which it can give him he will accept only on the condition that no strings be attached. For example, he may be unwilling to change his speech and thought and reasoning patterns in order to secure a higher grade in school or a promotion in his work.

Morgan (1970) wrote that one of the often stated problems of the inner city student is his lack of salable communicative skills. This shows up in his reading rate and comprehension and
is reflected in practically all of his other subjects. Comprehension is basic to the mastery of a college curriculum and depends upon a large language or vocabulary base. Orem (1967) has observed that the typical middle class child arrives in elementary school with about 10,000 words of vocabulary while the inner city child arrives often with as few as 3,000. Although Entwisle (1968) contradicts the time of the appearance of the gap, the existence of a standard English vocabulary gap seems assured. If the ghetto child continues to fall behind in his progress, by the time he reaches high school he may be performing at no higher than about the 6th or 7th grade level. When he reaches college he may be reading on about the 9th grade level with a vocabulary so small that he will not be able to make much progress in terms of the extensive reading he will be required to do.

Because of the discrepancy in the number of standard English words in the vocabularies of middle class and inner city pupils, middle class students will be familiar with many words which the inner city child does not fully understand even if he has seen them and is able to pronounce them. While the student may know the items of his environment, that environment is usually so homogeneous in poverty, occupational types, and other important facets that even if a child mastered it the limits of his competence would be small.
A great deal of what the child learns in his ghetto, even the concepts, cannot be used or have no currency in the middle class school.

The middle class home and school tailor the communicative skills of the child to the world of work. Most of what the child learns can be translated into something useful and related to improving his living standard. By contrast, the language the ghetto child learns within the home and on the streets is not geared to giving him a head start in the world of work.

The various special programs for the ghetto, or culturally distinct, youth place heavy emphasis on language training and improvement of communicative skills. Devices used include many audio-visual aids and programmed learning books to help the ghetto student expand his vocabulary and comprehension quickly. The student needs to build up a foundation of concepts for understanding not only definitions but relationships as well. Conceptualizing non-ghetto ideas appears to be a major shortcoming of the ghetto student.

**Dialect Differences**

As knowledge of ethnic dialects in America increases there is a tendency to treat the population of black ghetto dwellers as having different dialects. Typically, dialecticians divide the
United States into linguistic areas and observe regional variations in speech patterns and meanings. They then turn to various areas of large cities and note patterns of speech associated with each area where people of a particular culture and way of life have been long term residents.

Some students of dialects see many of the school problems of the inner city student as functions of teacher inability to understand that there are dialects in America. Persons emphasizing the dialect differences do not ordinarily see the student as being disadvantaged or deprived.

Donald Protheroe (1967), a dialectician, notes:

Teachers often make judgments of the intelligence of the child based on his ability to perform verbally in the classroom. The language that the lower class child uses may be so different from the language used by the middle class child that the teacher is unable to understand the language of the child of the lower class. She may therefore assume that the lower class child is unable to comprehend certain school related concepts. It is possible that the child has words to express an idea or concept which are the same words that the teacher would use to describe another set of relationships.

Protheroe found, for example, in a carefully controlled study with Detroit boys, that lower socioeconomic status black youth and middle
status white ones did not attach the same meanings to the same commonly used words. Black youths were found to conceptualize well (using physical science data) even though the concepts used were not the same as concepts covering the same phenomena which were part of the language of the middle class group.

Some scholars such as Strodtbeck (1964) emphasize the simplicity of the language of the lower class and report that mothers make use of simple imperative sentences, relying little on the use of explanations and statements in talking with their children.

 Bernstein (1961, 1964) and Bereiter and Engleman (1966) believe the linguistic code of the lower class may be good for sharing familiar experiences and opinions but it is inadequate for expressing personal or original opinions, for analyses and careful reasoning, for dealing with anything hypothetical or beyond the present, or for anything very complex. The language of this class serves to trap the child, prohibiting his ability to operate at the high conceptual and logical level that is required in formal education.

Thus, arguments supporting the limitations of the ghetto language contrast with those simply emphasizing the differences. While one tends to doubt the claimed simplicity of the ghetto language upon hearing its more colorful and complex aspects, the usefulness of the language in a middle class school is certainly restricted.
The arguments concerning ghetto language patterns polarize into whether the ghetto dialect should or should not be encouraged and preserved. Defenders of the "better language" argument say that ghetto students have to be made employable by their education and that "standard English" is the kind of speech that makes the right impression in a job interview. Sometimes a few changes in a student's speech would make important differences in the employer's reactions. For students who have employment as a major concern, the schools should have as a first concern the preparation of a student to land a job.

Reading improvement has had a basic place in the system of American education. Assimilation work with immigrants has stressed their mastery of American idioms of expression. Today reading forms the backbone of numerous public and private remedial projects. Paul Goodman (1964) notes that reading helps bring the kind of success that schooling leads to, he questions its importance as an aid in finding employment for Black Americans.

Cultural Differences

Concerning cultural differences, Barth (1961) wrote that administrators and teachers who have minimal knowledge of the culture of the inner city routinely point to the weaknesses of these
students in academic areas. Ghetto students counter with the argument that conventional schools do not pay enough attention to important cultural differences separating inner city persons from those in the outer city. Ghetto students point out that books and teaching materials are written in idioms foreign to the ghetto, putting them at a further disadvantage. (Goodman, 1964)

Green (1963) expressing the feeling of Black students noted that they vigorously claim that the inner city student, by being from a different culture, needs to know things that are relevant to his culture even if it is separate in important ways from the white culture. Students claim that the representatives of the white middle class are using devious tricks to keep them disadvantaged. The attempt to make them learn a new language and new mannerisms is part of the overall trick. People who have been outside a culture for a long time will, for the most part, be at a disadvantage when they attempt to remake themselves in the images of irrelevant others.

Morgan (1970) concluded by writing that today's ghetto students have questioned and often rejected bourgeoisie norms. They have had experience in the hardships of life and have had time to become bitter and disillusioned over institutionalized racism and ghetto poverty. Many have had substantial civil rights experience, having participated in major demonstrations in their regions. They
have combined the tribal dress of Africa with the revolutionary
dress of the poor people of Latin America adding to it the inimitable
dash of black American uniqueness. The outcome is a style of
dress and a manner which frightens and confuses many but captures
the approval of many other whites willing to admit it.

Of most importance is the fact that the black student, from
the ghetto or not, will not be stereotyped into one line of thought
or behavior. And no more is he willing to listen to, not to mention
accept, any argument about black stigma or black cultural inferiority.
Professors who have not substantially revised their thinking and
rewritten their lectures, editing out racist clauses, may expect to
run into trouble in teaching the sophisticated black student.

Validation and Prediction of Standardized Instruments
When Used in Testing Disadvantaged Students

The literature concerning the predictive validity of standardized
achievement tests with Black students is sparse when compared
to the many studies of intellective factors as predictors for white,
middle-class students. More sparse yet are studies that compare
the validity of achievement tests for middle-class white students to
that for Black students. The majority of such studies involving
Black students and were conducted at predominantly Black colleges.
Many validity researchers comparing Black and white students were forced accordingly to draw one sample from one institution and the comparison group from another. Needless to say, common sense dictates that such procedure seriously affects any results obtained.

Only recently have "integrated" colleges and universities been able to identify sufficiently large samples of Black students to conduct meaningful validity analyses of standardized achievement test predictions for such students. This explains why the following review of literature concentrates on recent studies.

Two of the largest and most "sophisticated" academic prediction agents, the College Entrance Examination Board and the American College Testing Program, have been major targets of criticism. Wisdom and Shaw (1969) summarize the basis for this criticism:

> In making admissions decisions, for instance, we have always used such traditional indices for predicting academic success as rank in the high school graduating class and college entrance tests scores . . . we have persisted in using these measuring devices despite existing evidence that the traditional indices have tended to measure what students have learned rather than what they can learn.

Plaut (1957) and Clark and Plotkin (1963) make similar observations. Berger (1968) and Wisdom and Shaw (1969) among others expand this thought by noting that emphasis on prediction systems
in nearly all colleges and universities is symptomatic of the prevailing philosophy of higher education: establishing fixed programs of study to which students must adapt. Obviously this runs counter to a philosophical stance gaining adherents which holds that the reverse should be true; namely, that educational systems remain flexible enough to respond vigorously to perceived needs, thus putting the onus on the system to adapt to those that compose it. Many proponents of this educational philosophy conclude that prediction has little relevance in such a setting. "After all," they ask, "why do we need grandiose prediction formulas—perhaps even the achievement tests, themselves—if, instead of selectively accepting only those predicted to be most adaptable to the institution, we structure our institutions to take leadership in identifying educational needs and adapting to meet those needs?"

In response to these and other criticisms, in 1967 the College Entrance Examination Board invited 20 leading educators to serve on a Commission on Tests. The Commission was asked to review thoroughly and critically the College Board's "testing function in American education and to consider possibilities for fundamental changes in the present tests and their use . . ." (Pearson, 1967). While making several severe criticisms and responding with recommendations for constructive changes, the Commission concluded
that the testing function should not be completely abandoned as suggested by some critics in recent years. To the criticism mentioned in the previous paragraph, the Commission issued the following remarks (Commission on Tests, 1970):

What is wrong with 'selective admissions' is partly that it has too often been conducted with too little regard for the intersection of socially and psychologically significant variables—and partly that its application has not produced a sufficiently diverse set of colleges fraught with crises of various kinds. Trying to solve any of these crises by discarding relevant information is a bad bet. Adjusting the entrance process will not solve all the problems, but it will help.

Hull (1970) suggests that prediction can not and should not be shelved entirely since it is socially naive and educationally unsound to believe that all colleges and universities will or should eliminate the concept of selective admission. Along with Belvin (1971) and Harris (1971), he implies that the public-supported institutions are the most hard-pressed to justify selective admission.

While some educators question the emphasis on academic prediction, others who consider effective prediction a very desirable goal wonder about the harm of using prediction schemes in view of their imprecision. This apprehension increases with the thought that such imprecise tools frequently are wielded by interpreters
with little understanding of statistical prediction and/or of the instruments themselves. Fishman and others (1964) point out that this "caution is doubly merited when educational and psychological tests are administered to members of minority groups." They concluded the following:

standardized tests in use present three principal difficulties when they are used with disadvantaged minority groups: (1) they may not provide reliable differentiation in the range of the minority group's scores, (2) their predictive validity for minority groups may be quite different from that for the standardization and validation groups and (3) the validity of their interpretation is strongly dependent upon an adequate understanding of the social and cultural background of the group in question.

Lavin (1964) points out several major problems in predicting academic performance for any group. First and foremost, he doubts the common assumption of linearity in prediction. He cites as indicative of this assumption of linearity that most studies assess the relationship between a predictor variable and a criterion variable through correlational analysis. One of Lavin's observations is particularly relevant to this study:

In almost all of these studies, the correlation methods assume linear relationships—that is, they assume unit increases in the predictor variable
will be followed by unit increases (or decreases in the case of negative relationships) in the criterion, and that this will occur along the entire distribution of scores.

This latter assumption was tested by determining association in four specified sub-ranges of the predictor variable as well as for the total range. McClelland (1958) suggests that ability and performance measures should be carefully scrutinized for increase, decrease, or threshold characteristics of ability in relation to performance at various sub-ranges along the overall ability range.

Second, in the same analysis Lavin forwards the notion that correlations of extreme magnitude—low and high—lead to difficulty in making inferences about the meaning of the relationship (or lack of relationship) demonstrated. Third, he submits that all too often researchers assume that statistical association signals causal relationship. Most distressing are those who know this fallacy and yet commit it anyway in their zeal to prove a certain hypothesis of causation. Another major problem in prediction of academic performance owes to the validation of predictive formulas almost exclusively by studies of static rather than longitudinal design. Lavin asks if we might find different results if predictive validity studies investigated validity at several points in time as opposed to a single point in time. This is especially true in that
almost all studies are concerned with prediction of grades for the first semester of the freshman year. Finally, Lavin stresses that academic performance and its prediction involve much more than intellective factors. Other important variables include personality factors and social determinants.

Though the preceding pages register several of the problems and the confusion in prediction of academic performance—especially for culturally different students from low socio-economic backgrounds—by no stretch of the imagination would it be accurate to conclude that present prediction systems have no defenders.

Jensen (1969) infers that achievement tests and other assessors of ability and intelligence reflect quite accurately the fact that Blacks and certain other populations have inbred more than most cultures and sub-cultures, resulting in genetically-based inferiority in "basic" intelligence and susceptibility to improvement of mental functioning. He concludes that this dooms most compensatory education programs to failure since they strive to increase the genetically-programmed ability levels of children and adults, levels which are highly resistant to modification. Jensen has been criticized severely for promulgating a quasi-Curse of Ham doctrine that suffers from lack of originality as well as its highly speculative quality.
Julian Stanley has emerged as a major spokesman of vocal defenders of the predictive validity of achievement tests for minority group students. In an article discussing the prediction of college success of the educationally disadvantaged, Stanley (1971) draws the following conclusions from the available evidence:

Many claims are made that (achievement) test scores have little or no value for predicting the success of disadvantaged applicants to colleges. Anecdotes are abundant, but upon investigation they are usually found to be atypical or cannot be verified. An admissions officer ignores test scores at his institution's peril.

The previous generalizations and examples represent several divergent viewpoints concerning the predictive validity of standardized achievement tests for Black and white students.

Empirical study of the previously described criticisms and defenses of the differential predictive validity of achievement tests for Black students at integrated institutions had been virtually impossible in American higher education until recent years. Conducting such studies was precluded by the limited numbers of Black students. Researchers found, more often than not, that they simply could not identify enough students belonging to a certain minority group to construct a sound comparative design. The advent of special recruitment of minority student programs in
the middle and late 60's produced a number of noteworthy studies.

In a thorough search of the literature Young (1972) noted that these studies investigated the validity of standardized achievement tests for predicting grades of a given Black student population in traditional white, middle-class settings in one or both of the following ways:

1. If the test(s) were biased against the minority students, the relationship between test scores (and/or test predicted grades) and actual college grades would be significant for the majority culture students but not significant, or significantly lower, for the minority students.

2. Or given a similar relationship between test scores (and predicted grades) and actual grades for minority and majority group students, prediction bias would be reflected if grades earned by minority students at a given test score level were significantly higher than those earned by majority students in the same test score range.

Biaggio (1966) found that the validity of the Scholastic Aptitude Test (SAT) as a predictor of college grades for Blacks in Black colleges appears to be as high as the typical validity for white students in predominantly white institutions. Stanley and Porter (1967) conducted a similar study, finding results similar to those observed by Biaggio. Olsen (1967) and Roberts (1964) also demonstrated that when the SAT was used in combination with
high school rank, multiple correlation coefficients were not significantly different for students in Black and white institutions, respectively. Funches (1963) and Munday (1965) reported similar findings when the American College Test (ACT) rather than the SAT was used as a predictor. The evidence suggests overwhelmingly that achievement test scores are similarly associated with first-semester college grades for Blacks who attend Black colleges and whites who attend predominantly white institutions.

However, the validity of achievement test predictions for Black students attending predominantly white institutions seems undetermined at this point in time. For example, Clark and Plotkin (1963) studied a group of students who had applied for aid from the National Scholarship Service and Fund for Negro Students to make possible their attending interracial colleges during the 1952-56 academic years. They found the actual academic performance of these students to be significantly higher than what was indicated by the predictive indices of the SAT. Green and Farquhar (1965) compared the School and College Ability Test (SCAT) verbal-reasoning scores with high school grade-point average for 104 Black males and 254 white males. They reported a correlation coefficient between these two variables of only .01 for the Black males while the coefficient for white males was .62.
Cleary (1968) attempted to replicate the two studies reported above but obtained different results. In studying the differential predictive validity of the SAT for Black and white students at each of three different integrated colleges, Cleary concluded the following:

1. Regression lines for Blacks and whites were not significantly different in two eastern schools.

2. In a Southwestern college, the regression lines were significantly different, showing that Black student predicted grades were higher than actual grades—just the reverse of what was expected. This meant that a test bias was operating for the sample studied at this school, but it was a positive bias.

3. When SAT scores are combined with high school grades on rank, the degree of positive bias increases in predicting Black students' grades.

Cleary (1968) summed up her findings by stating the following:

The schools used in this study do not represent the full spectrum of colleges in the United States, so general conclusions can not be reached. In the three colleges studied, however, there was little evidence that the Scholastic Aptitude Test is biased as a predictor of college grades.

In contrast to Cleary's work cited above, Borup (1971) found that the ACT "does have an inherent bias, consistently favoring students of Anglo-American extraction" over a comparison group of
Mexican-American students. In this study, Borup compared the validity of predictions based on ACT scores and high school rank, respectively, for 260 Mexican-American students and an equal number of Anglo-Americans. While mean ACT composite scores and subscores were significantly higher for the Anglo-American group, no significant difference in first-semester college grade-point average was found. High school rank and college performance were similarly associated for Mexican-Americans and Anglo-Americans. Cherdack (1970) followed a similar design in testing the predictive validity of the SAT for disadvantaged college students in a special education program at the University of California, Los Angeles. He found that SAT scores correlated with college grades consistently to a lesser degree for the special program students than for a comparison group of students reflecting the majority culture.

Davis and Temp (1971) conducted a comprehensive study at 19 integrated colleges and institutions which helps to account for the contradictory findings of the studies cited earlier. At six of the 19 institutions, predictive validity of the SAT for Blacks and whites was essentially equal. To the contrary, at five other schools, correlation coefficients between SAT scores and first semester grades obtained for Black students were not significant while the same variables were significantly correlated for comparison
groups of white students at each school. Regarding the seven remaining institutions, Davis and Temp reported data showing that prediction equations based on the predominantly white standardization groups actually over-predicted the actual grades earned by Black students at each institution.

**Nelson-Denny Reading Test and Scholastic Achievement**

Research with the earlier forms of the Nelson-Denny Reading Test indicated a close relationship between test scores and scholastic achievement. Garret (1949) in a comprehensive study specifically mentioned the Nelson-Denny Reading Test as giving "a good indication of probable college success." In a summary of 57 reported correlations between scholastic achievement and achievement test scores in specific subject matter fields, the range of coefficients was from .10 to .70 with a median of .40. The Nelson-Denny Test showed a correlation of .67 with achievement in one of those reported correlations. This compares quite favorably with the correlation between intelligence and scholastic success, as measured with a wide variety of intelligence tests. These findings suggest that the inclusion of the Nelson-Denny in college entrance batteries should noticeably improve it's predictive accuracy. Garrett reported in his conclusions that the Nelson-Denny Reading Test gives a good
indication of probable college success, no doubt due to the reasonable assumption that there is a close relationship between one's ability to read and his probable success in college.

In an early study of the predictive value of the Nelson-Denny Reading Test, Nelson (1930) coauthor of the instrument, found that correlations between the reading test scores and scholarship in all subjects held up better than two English tests administered to a group of freshmen at a teachers college and the State University of Iowa. The Nelson-Denny held its own when compared with the Iowa High School Content Examination in predicting success in college subject areas.

An experimental study at Brooklyn College by Wedeen in 1963 used the Nelson-Denny Reading Test as one of the main measurement criteria for a group of freshmen taking concentrated remedial work in reading and writing skills. The training was done primarily on an individual basis; it began with a diagnosis and ends with an evaluation. While the results of the study indicated that training in reading and writing skills resulted in genuine gains which were reported maintained over a prolonged period of time, the authors did not determine if academic grades were affected.

Holmes (1948) as part of his Ph.D. thesis at Berkeley, did a thorough study in reading ability at the college level. He stressed
the marked-to-high correlations (r's of .49 to .76) between reading ability and intelligence. He quoted a study by Templeman (1940) finding academic standing of college students could be satisfactorily predicted from their entrance vocabulary. These findings relate to one of the earliest studies by Thorndike (1917) in which reading is defined as reasoning. It would follow then, the better the student can read, the better his vocabulary and the higher his intelligence as measured by mental tests are likely to be.

Alexakos in a study at West Virginia University found that the GRE Verbal and the undergraduate grade point average were significant predictors of the graduate grade point average. The GRE Quantitative was not a significant predictor. It was suggested in this study that a minimum GRE Verbal score of 400 and undergraduate G.R.A. of 2.5 be required for admission to the West Virginia University Clinical Studies and Education programs.

Palacios (1959) at Purdue University concluded from the results of statistical analyses that the best single predictor of future academic success was past academic achievement as measured by the first year G.P.A.

Communicative skills and comprehension of English as measured by the New Purdue Test in English (0.382 to 0.384) and the Nelson-Denny Reading Test (0.286 to 0.384) also contributed
to the efficiency of equations emphasizing the fact that these skills are fundamental to academic or scholastic success.

Ryans (1960) studied the characteristics of teachers who were considered superior and found that there is a relationship of verbal understanding to emotional adjustment and certain other characteristics found in superior teachers. He says:

Superior intellectual abilities, above average school achievement, good emotional adjustment, attitudes favorable to pupils, enjoyment of pupil relationships, generosity in the appraisal of behavior and motives of other persons, strong interests in reading and literary matters, interest in music and painting, participation in social and community affairs, early experiences in caring for children and teaching (such as reading to children and taking a class for a teacher), history of teaching in the family, family support of teaching as a vocation, and strong social service interest, . . . apply very generally to teachers judged by various kinds and sets of criteria to be outstanding.

We can conclude from these sources, then, that there is a high correlation between reading and college success and the student's intelligence as measured by tests. High verbal understanding and an interest in reading are two general characteristics of superior teachers.
Cline (1969) conducted a study at the University of Colorado to see if the performance of students on the Nelson-Denny Reading Test, given in the introductory education class, could be used as a predictor for teacher success and as a variable in selection of the best teacher-education candidates.

The scores on the Nelson-Denny Reading Test have been placed on the standardized percentile ranks. Since half of the students were sophomores, and three-fourths of the remaining half were juniors, the summary of the percentile ranks were placed between the 14th and 15th years of school. The results of this ranking show vocabulary at the 59th percentile, comprehension at the 64th percentile, the total at the 62nd percentile, and reading rate at the 70th percentile. Only 192 of the 205 students reported their reading rate, with the resulting mean of 331 words per minute and a standard deviation of 92.13.

This study reinforced many other studies and their findings. The validity of the Nelson-Denny Reading Test with its own parts, as claimed in the Examiner's Manual, was proven by the high correlation between these parts. This study shows that prospective senior high teachers are more verbally skilled than prospective primary teachers, as shown by the significant positive correlations shown for all sub-tests except rate. These findings support the
observations Ryan made from his study in which the verbal scores of secondary teachers were at a significantly higher level than those of elementary teachers. The correlation increases as the grade level increases. This is illustrated in the present study with the correlations for future primary teachers at -.134 going to -.033 for intermediate teachers, to .051 for junior high teachers and .222 for senior high teachers. (These are based on the Total column.) Ryan's statement that the highest significance in verbal skills is found in secondary school English teachers is verified in the University of Colorado study also. English, at the .01 level of significance, and foreign language, at the .05 level, were the only two majors where there was a level of significance in the Total column.

The author concluded that since all acquired evidence indicated that verbal skills and reading ability are important for college success now and for later teacher performance and success, it seems plausible to use a reading test, such as the Nelson-Denny, as a means of evaluating student applicants into teacher education programs. A certain percentile rank for sub-scores or totals could be agreed upon as a desired level for the various teaching majors. These additional insights into the student's ability, correlated with his established grade point average, could give a much more complete picture of his potential for success in the teaching profession.
Belcher (1970) conducted a study at Pacific Lutheran University to substantiate the assumption that improving reading efficiency will contribute to the improvement of grades. In short, it was assumed that there is a significant (.05) positive relationship between an individual's reading efficiency and his grade point average (GPA). The hypothesis was partially supported. Although the results was not conclusive, the study did indicate that course that aids students to increase their reading efficiency may also aid them to increase their academic performance.

Blai (1970) who studied the use of the Nelson-Denny Reading Test at Harcum Junior College in Bryn Mawr, Pennsylvania, found the Nelson-Denny Reading Test to be a useful measuring instrument for predicting academic achievement, screening students, and diagnosing reading and learning problems. Blai's conclusions were as follows:

1. Nelson-Denny test score percentile ranks clearly reveal specific reading skills strengths and weaknesses, making it possible for a concerned faculty to guide students toward a more intelligent attack upon their reading difficulties.

2. For diagnosing individual problems, strengths, and weaknesses--the sub-test scores in vocabulary and
comprehension are most useful. Numerous empirical results indicate that students scoring at or below the 30th percentile, in either the verbal or comprehension scores, are 'prime candidates' for prompt remedial reading assistance.

3. All 1970 freshmen who scored at or below the 30th percentile are rostered for the Harcum Reading Development Course. Those scoring above the 30th percentile may do so on an optional basis.

4. In 1966 some 32% of the freshmen scored at or below the 30th percentile. In 1967 some 144 freshmen (or 39%) scored at or below the 30th percentile. In 1969 only 54 freshmen (or 14%) had these lower scores. Unfortunately, in 1970, some 145 freshmen (or 53%) had these lower scores.

Blai (1971) again conducted another study and showed that there is a substantial degree of correlation between scores obtained on the Nelson-Denny Reading Test and the academic averages obtained by freshmen students at Harcum Junior College. This indicates that the reading test is a useful measuring instrument for predicting general levels of first-year academic achievement.
Blai concluded his findings with the following points:

1. To ascertain the extent, at Harcum, to which Nelson-Denny scores are associated with academic averages, a records analysis was recently completed. This revealed that all freshmen who earned Dean's List and President's List honors (3.5 - 4.0), also earned "Total" Nelson-Denny percentile rank scores of 50th percentile or higher.

2. Additionally, with the exception of just nine students who scored below the 30th National percentile on the Nelson-Denny, (only 11% of the 82 who earned Honors List averages of 3.0 - 4.0), all others who earned Honors List averages also earned Nelson-Denny scores above the 30th National percentile, (the 'cut-off' point below which a high probability exists of the student experiencing a reading problem).

3. It was further noted that only 11 (or 6%) of those earning a first-year cumulative average of 2.5 or higher, earned "Total" Nelson-Denny scores below the 30th National percentile.

4. And finally, for the 50 freshmen who were on academic probation (averages of 1.9 or below) at the end of their first year, some 40, or 80%, had Nelson-Denny scores
below the 30th National percentile.

5. In summary:

(1) For students achieving academic "honors" records at Harcum, the Nelson-Denny 'predicts' to a very high degree, (100% for those earning Nelson-Denny scores at or above the 50th National percentile)

(2) Approximately 94% of those earning first-year cumulative averages of 2.5 or higher also earned Nelson-Denny scores above the 30th National percentile.

(3) Some 80% of those on academic probation at the end of their first year (1.9 or lower cumulative averages) also scored below the 30th National percentile on the Nelson-Denny.

(4) The Nelson-Denny is therefore a useful measuring instrument to 'predict' general levels of first year academic achievement.

In the writer's review of three decades of issues from the Journal of Reading, Psychological Journals and other Journals related to the problem of this study, it would have been something of a small achievement to have found a sizeable sample of minority group members included in reported studies.
In correspondence with Dr. Brown (author of the revised edition and addition reading rate inclusion of the Nelson-Denny Reading Test) the writer learned that no research applying the Nelson-Denny to a large sample of disadvantaged students (particularly Afro-Americans) is knowledgeable to the author of the instrument. (See a copy of the letter in Appendix A).

One most recent study which showed positive results with the Nelson-Denny Test of Reading suggested that it is a good measuring instrument for predicting academic performance of freshmen students. Personal contact by telephone with Dr. Boris Blai, the investigator of this study, revealed that his population of students at Harcum Junior College consist of less than 3% Afro-Americans, none were used in this study. This raises some doubt as to whether the Nelson-Denny Reading Test will stand up as a good predictor of academic performance relative to Afro-American students.

The lack of predominantly Afro-American institutions participating in the standardization program of the Nelson-Denny may be another factor. Of some 33 different Junior Colleges, universities, liberal arts colleges, technical colleges, and state teachers colleges in 21 states and the District of Columbia only one predominantly Afro-American institution participated in the standardization program. Shaw University at Raleigh, North Carolina along with two or three
smaller institutions were the only participants in the program of Afro-American ethnic background. The total student enrollment at Shaw University is less than 1500.

To assume that the Nelson-Denny Reading Test is a good predictor of academic performance for disadvantaged students because of positive results stemming from the research may prove as fruitless as the predictive validity of standardized achievement tests.

The Nelson-Denny Reading Test was administered to incoming disadvantaged freshmen at Ohio State University during school year 1971-72. The selection of the test was done without prior knowledge of research supportive of its usefulness with sub-cultural ethnic groups. Since the Nelson-Denny is not primarily diagnostic in nature but is essentially a reading test measuring the vocabulary, comprehension and reading rate of one's educational achievement, it becomes questionable as an instrument which may prove to be no better than other disputed standardized achievement tests when applied to minority groups.
CHAPTER III
METHODOLOGY OF THE STUDY

This chapter presents a discussion of the population, study sample, design of the study, the instruments employed, methods of gathering data and statistical operations for data analysis.

Population of the Study

This study investigated the relationship between the sub-tests of the Nelson-Denny Reading Test and cumulative first year grade point averages of a Black student population enrolled as freshmen during the 1971-72 academic year at Ohio State University. Ohio State University is a large "integrated", public-supported, mid-Western University. All subjects in this study were drawn from the population of freshmen who were enrolled in a special program at the university designed to assist students from disadvantaged situations.

The student population was composed of freshmen who entered The Ohio State University autumn quarter, 1971, as participants in the Freshman Foundation Special Recruitment Program. A total population
of 557 students from a multi-racial group of rural and urban environmental backgrounds enrolled in the Special Program.

From the total population of 557 freshmen students, a target population of Afro-American students composed of 85 percent of the total population, 13 percent "Appalachian whites" and two percent "other" minorities.

The investigator was unable to obtain an actual figure count of the multi-racial group. Because of the nature and stigma attached to the special program, optional request of students to identify his or her racial/ethnic background and the sensitivity of administrators and personnel in Freshman Foundation Program to divulge this information, an accurate account of the target population was not possible. A close figure would be 85 percent of the 557 total population, accounting for about 478 males and females in the target population.

The subjects in this study were drawn from 271 students who took the Nelson-Denny Reading Test during the week of the Freshman Foundation Orientation Program at the beginning of the autumn quarter 1971. Of the 271 students who wrote the test, ninety were excluded from the study for reasons as follows:

1. Racial/ethnic background was identified as other than Afro-American (Black).
2. Cumulative first year average did not include enrollment for three quarters.

3. Percentile rank scores was not included for all three sub-tests (vocabulary, comprehension and reading rate).

In the total population of 557 freshmen students, 271 were administered the Nelson-Denny Reading Test. After exclusion of subjects previously mentioned, 181 Afro-American freshman students were the members of this study. Of the 181 students, 78 were males; 103 were females.

All the students in the population resided in the State of Ohio and graduated from an accredited high school, thus meeting the only two requirements needed currently to be admitted to The Ohio State University under the "open admissions" policy for Ohio residents.

The students in this total population shared the common experience that their sociocultural, academic and economic backgrounds do vary significantly from the middle and upper-middle non-minority student population. Because of the current, hot and controversial issues on testing culturally different students with standardized achievement tests, it was the researcher's personal desire to limit the subjects of this study to Afro-American students.

The population of students in the study were enrolled in University College, a non-degree granting college "portal of entry."
Therefore, all students in this study were part of the special program in University College called Freshmen Foundation Recruitment Program. A majority of students in the special program were assigned counselors of similar racial/ethnic background. This counseling staff composed what was termed the Office of Supportive Services. Though conceived as a supportive services team in a special program to provide intensive assistance to the recruited students, the staff included only the equivalent of four full-time counselors who were charged with academic advising responsibilities as well as counseling duties. The projected special supportive services program, contingent on federal funding which was denied, was to include over 20 full-time staff members. Since this supportive services effort suffered from severe understaffing and inadequate funding, the writer concluded that the quality and quantity of counseling, advising, and other services for the special student population were not enough to introduce a confounding variable.

**Selection of Subjects**

A target population of 181 Afro-American freshmen students composed the group who were subjects in this study. Of this total, 78 were males and 103 were females. This sample was obtained by selecting from the total population of 557 minority students (85 percent
Afro-American) who were recruited through the Freshman Foundation Special Recruitment Program. The subjects in this study were those students who wrote the Nelson-Denny Reading Test Tuesday, September 28, 1971, during Freshman Foundation Orientation and who enrolled at The Ohio State University during the autumn, winter and spring quarters 1971-72. Out of the total population, 271 students took the Nelson-Denny Reading Test. Ninety students were not included in the study, leaving a total of 181 students. (See limitations of the study for 90 students not included in the study).

The 181 members who were used in the study took the Nelson-Denny Reading Test during the week of the Freshman Foundation Orientation Program at the beginning of the autumn quarter 1971. The test was administered September 28, 1971 at the main campus of The Ohio State University in Columbus, Ohio.

Design

To investigate the relationship between Nelson-Denny Reading Test scores and academic performance of Afro-American freshmen students enrolled at Ohio State University, a single homogeneous group of males and females was identified. The following data relating to variables were gathered for each member of the group:
1. vocabulary sub-test percentile rank scores on the Nelson-Denny Reading Test
2. comprehension sub-test percentile rank scores on the Nelson-Denny Reading Test
3. "Total" percentile rank score (an average of the vocabulary and comprehension sub-test scores) on the Nelson-Denny Reading Test
4. reading rate sub-test percentile rank scores on the Nelson-Denny Reading Test
5. Autumn, winter and spring quarters cumulative first year grade point averages
6. sex differences was noted in the correlations of the "Total" scores on the Nelson-Denny and cumulative grade point averages.

Variable one, two, three and four were predictor variables and five constituting the criterion variable.

The relationship between the sub-test scores on the Nelson-Denny Reading Test and cumulative first year grade point averages for male and female students was computed. The cumulative grade point averages were identified in the following ranges:

1. Those with cumulative first year grade point averages within a sub-range of 0.00-1.99.
2. Those with cumulative first year grade point averages within a sub-range of 2.00-2.49.

3. Those with cumulative first year grade point averages within a sub-range of 2.50-2.99.

4. Those with cumulative first year grade point averages within a sub-range of 3.00-4.00.

The sub-group range levels of cumulative grade point averages were examined in terms of sub-test scores in vocabulary, comprehension and rate of reading below the 30th national percentile on the Nelson-Denny Reading Test.

Finally, the sub-group range levels of cumulative grade point averages were examined relative to the number and percent of students earning "Total" Nelson-Denny percentile rank scores above the 50th national percentile, at or above the 30th national percentile, and below the 30th national percentile.

**The Nelson-Denny Reading Test**

The Nelson-Denny Reading Test is an instrument which appraises an individual's vocabulary and reading comprehension and rate as well as probable academic success. It was recently revised for the first time since the original forms were published in 1929 and 1930.
Description

There are two forms of the test, each with two parts which are timed separately. Part I consists of 100 vocabulary items, arranged in order of increasing difficulty, which cover a range from grade 9 to senior year of college. The standard administration time for this part of the test is 10 minutes, although it can also be given in 7-1/2 minutes to more advanced students in reading improvement programs. Part II is comprised of eight reading passages with a total of 36 five-foil multiple-choice questions on their content. Two scores are derived from this part: Reading Comprehension, which is the number right weighted by a constant of 2; and, Reading Rate, which is determined from the amount of material read in the first selection in one minute by instructing the examinee to mark the line number reached within this time limit. The total time for Part II is 20 minutes for the standard administration and 15 minutes for the cut-time administration. Either IBM or self-marking answer sheets are available for use with the test. See test (form A) and IBM answer sheet in Appendix C.

Norms

Unusually complete normative data relative to this study are given for the test which was standardized with the norm groups of
some 4,000 college freshmen. Percentile norms are available for grades 9 through 16 for Vocabulary, Comprehension, Rate and Total scores, as well as for adults with the cut-time administration. In addition, grade equivalents, which are the median scores achieved by students at a given educational level, are reported for grades 7 through 14. Appropriate cautions in the use of grade equivalents, which are subject to irregular patterns of reading development both within and between school levels, are made in the Manual. In general, the norms appear to be both comprehensive and representative, considerable effort having been expended to secure samples which closely approximate the national population of high school and college students in regional distribution and community size.

Reliability and Validity

Reliabilities for the test are based upon a study of 110 college students who took Forms A and B over the period of one week. One-half of the sample was administered Form A first, and the other half was given Form B first, so that order and other effects specific to the forms were counter-balanced. The resulting stability coefficients were as follows: Vocabulary = +.93, Comprehension = +.81, Rate (initial) = +.93, Rate (after training) = +.82, and Total = +.92.
These reliabilities seem to be adequate for both general screening purposes with the total scale and diagnostic work with the subscales. With respect to the latter, the validity data on the test, which consists primarily of item analyses indicates that it can be used to identify differential difficulties in vocabulary and comprehension. The value of the rate score is less certain, since no data on its correlation with comprehension are reported, but its expected relationship would be high.

For further technical information, such as Reliability, Validity, Correlations with other tests and standardization of the Nelson-Denny Reading Test, consult the manual in Appendix B.

**Critical Reviews on the Nelson-Denny Reading Test**

Consideration should be given to some of the weaknesses of the Nelson-Denny Reading Test. Any reading test measures reading skills somewhat superficially.

Vogel (1964) in analyzing all reading rates, says:

Because of the limited time, the multiplicity of topics, the lack of motivation, absence of a frame of reference for the reader, the trivial as well as baffling choices offered for answers, and the rewarding of the multiple-choice know-how rather than reflection—all result in unreliable scores and reading grades.
Cline (1969) stated his opinion of the instrument as follows:

However, the Nelson-Denny Test has a high reliability score, making it adequate for both general screening purposes with the total score and diagnostic work with the sub-scores. The validity data indicate that it can be used to identify differential difficulties in vocabulary and comprehension.

Because reading tests are timed, the percentile ranks and grade levels are determined by correct responses for all possible answers and not on correctness in the sections completed. This handicaps the slower but competent reader. The reading comprehension sections in the Nelson-Denny Test include selections from literature, history, and sociology, providing some handicap to mathematics or science students. The reading rate section is based on only one minute, with no check on comprehension for that particular minute. One minute is not an adequate test of reading rate, since it may take the reader several seconds to get into the material and to gather momentum.

Crites (1963) reviews the Nelson-Denny Reading Test and had these comments:

The Manual attempts to convey the impression that the Nelson-Denny usually correlates with scholastic achievement in the 0.60's, so that the test has considerable congruent validity, if only modest predictive validity.
Crites concludes that the Nelson-Denny Reading Test is a well-constructed and excellently standardized measure which can be confidently recommended to counselors. Its scores appear to be quite reliable, and there is some evidence of its validity for a variety of purposes. If there is a shortcoming in the work which has been done on the test, it is in certain unverified statements which are made in the Manual. For example, on page 22, studies on the relationship of the Nelson-Denny and other tests to academic achievement are summarized and then the following conclusion is drawn: "These findings suggest that the inclusion of this test (the Nelson-Denny) in any college entrance battery should noticeably improve its predictive accuracy." There is no basis for this inference, which would require data on the differential contributions of tests to a battery, such as are determined by a procedure like the Wherry-Doolittle. Consequently, the Manual should be read critically and discriminatively, since parts of it are misleading, but this should not unduly detract from the over-all high quality of the test.

**Student Locator Grade Report for University College**

*The Student Locator Grade Report for University College* is a computerized print-out prepared for University College, a non-degree granting college for all freshmen and sophomores who have not yet
declared a major field of study. Generally all freshmen must remain in University College for two full-time quarters. From the third to sixth quarters of full-time enrollment, the student can opt to remain in University College or transfer to a degree-granting college. During the sixth quarter of full-time study, he is required to declare a major field of study.

At the end of each quarter, the Student Locator Grade Report for University College provides an alphabetical listing of all students in University College, showing, among other information, the following important data:

1. Rank in college (freshman or sophomore)
2. Earned hours for the quarter
3. Cumulative earned hours
4. Quarter grade-point-average
5. Cumulative grade-point-average

Grade-point-averages at Ohio State University are determined by finding the mean of individual grades (to three decimal places) on the basis of the following grading format:

<table>
<thead>
<tr>
<th>Grade</th>
<th>Description</th>
<th>Number of Quality Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Highest quality of work</td>
<td>4</td>
</tr>
<tr>
<td>B</td>
<td>Second highest quality of work</td>
<td>3</td>
</tr>
<tr>
<td>Grade</td>
<td>Description</td>
<td>Number of Quality Points</td>
</tr>
<tr>
<td>-------</td>
<td>------------------------------</td>
<td>--------------------------</td>
</tr>
<tr>
<td>C</td>
<td>Third highest quality of work</td>
<td>2</td>
</tr>
<tr>
<td>D</td>
<td>Lowest quality of work</td>
<td>1</td>
</tr>
<tr>
<td>E</td>
<td>Failing work</td>
<td>0</td>
</tr>
</tbody>
</table>

Therefore, a student earning grades of A, B, A, B for four courses completed in a given quarter would show a quarter-grade-point average of 3.500 in the Student Locator Grade Report.

**Methods of Gathering Data**

Methods of gathering data for the study is discussed in this section. A computer punch card was obtained for each student which included data compiled for each student. This card was obtained by coding desired information on scan sheets which were read by digital scanner to produce cards. This card records college grade-point-averages (quarters and cumulative). Cumulative grade-point-averages and percentile class ranks (by converting rank order number to a percent) for autumn, winter and spring quarters were obtained from the Student Locator Grade Report for University College, published at the end of each of the three quarters.

As described earlier, five variables were central to this study. They were as follows:
1. Vocabulary sub-test actual percentile class rank of the Nelson-Denny Reading Test
2. Comprehension sub-test actual percentile class rank
3. "Total" score (average of vocabulary and comprehension sub-test scores) of the Nelson-Denny Reading Test
4. Reading rate score given in actual percentile class rank of the Nelson-Denny Reading Test
5. Cumulative autumn, winter and spring quarter grade point average.

The values of each of these variables and a sex code for each student were identified on a single card. Variables one, two, three and four were recorded from scores on the Nelson-Denny Reading Test. One hundred and eighty-one Afro-American students took the test and their scores were made available. These variables and other factors were not available for 90 students. These 90 students were excluded from the study, leaving a total of 181 students defined as the total study group.

Statistical Analysis

In the first phase of the problem, correlations between variables three and five for males, females and the total group were obtained by running the appropriate cards on computer program P-STAT,
VERSION 3.03 which computed Pearson product moment correlation between the two variables, namely the Nelson-Denny "Total" percentile score and cumulative first year grade point average.

Testing for the significance of difference with correlation coefficients was determined by employing the following formula:

\[ t = \frac{r_{xy}}{\sqrt{1 - r_{xy}^2}} \frac{1}{(N - 2)} \]

The obtained value was compared to the critical value required to establish significance at the .05 level under the normal probability curve. Since this critical value is 1.96, my value obtained from the formula equal to or higher than 1.96 shows significant differences in correlation coefficients between test score means and cumulative first year grade point averages of the groups. If the value obtained was lower than 1.96, it was concluded that no significance difference between the correlation coefficients of the two variables being compared. The P-STAT, VERSION 3.03 computer program was developed at Princeton, New Jersey, 1971.

In the second phase of the problem the computer program BMDX70 was run separately to sort the cards into sub-group academic levels. The "Total" Nelson-Denny percentile rank mean scores of each sub-group was computed and a comparison of the mean scores
of each sub-group was tested relative to six null hypotheses developed in Chapter 1. The computer program BMDX70 calculated t and p values for each sub-group comparison.

In the third phase of the problem an examination was conducted to determine the number and percent of subjects earning scores on the vocabulary, comprehension and/or reading rate sub-tests below the 30th national percentile. The sub-test scores of the subjects were examined as recorded on the computer print-out data from program P-STAT, VERSION 3.03. Each student earning 0, 1, 2 or 3 sub-test scores below the 30th national percentile was tallied and counted in the sub-group academic range level according to his cumulative first year grade point average.

In the fourth and final phase of the problem an examination was conducted to determine the number and percent of subjects earning a "Total" Nelson-Denny percentile rank score above the 50th national percentile, at or above the 30th national percentile and below the 30th national percentile. The "Total" Nelson-Denny percentile rank score is an average of the vocabulary and comprehension sub-test scores. The latter two sub-test scores were taken from computer program P-STAT, VERSION 3.03 print-out data and calculated by hand into the total percentile rank score. Each "Total" score was tallied and counted in the column under its percentile rank value and
also in the sub-group academic range levels.

This chapter presented a discussion of the population, study sample, design, instruments employed, methods of gathering the data and statistical analysis. In the following chapters, analysis and results are presented in Chapter IV and summary, implications and recommendations are presented in Chapter V.
CHAPTER IV

ANALYSIS AND RESULTS

It is the purpose of this chapter to present the findings of the study. The data are presented corresponding to the four phases of studying the problem as outlined in Chapter I. In the first phase, findings were reported for each of three null hypotheses restated as follows:

\(H_0\)

A1: The "Total" percentile rank scores on the Nelson-Denny Reading Test will not correlate at the .05 level of significance with cumulative first year grade point averages of culturally different Afro-American male freshmen students.

\(H_0\)

A2: The "Total" percentile rank scores on the Nelson-Denny Reading Test will not correlate at the .05 level of significance with cumulative first year grade point averages of culturally different Afro-American female freshmen students.

\(H_0\)

A3: The "Total" percentile rank scores on the Nelson-Denny Reading Test will not correlate at the .05 level of significance
with cumulative first year grade point averages of culturally different Afro-American male and female freshmen students.

The first phase of the investigation was designed to determine if there is a substantial degree of correlation between the "Total" scores obtained on the Nelson-Denny Reading Test and the academic averages obtained by the subjects in the study. Three null hypotheses were generated and subjected to a t-test at the .05 level of significance.

A summary of the means and standard deviations for the Nelson-Denny "Total" percentile rank scores and cumulative first year grade point averages for males, females and total group is provided in Table 1.

The means of the "Total" score on the Nelson-Denny was near the 50th national percentile for males, females and the total group while the means of the cumulative grade point average for males, females and the total group was just above a 2.00.

As reported in Table 2, a significant relationship was found in hypotheses A1, A2, and A3. In hypotheses A1, A2, and A3 the three correlations were found at the .01 level of significance; therefore, null hypotheses A1, A2, and A3 were rejected.
# TABLE 1

MEANS AND SD OF THE NELSON-DENNY "TOTAL" SCORE AND CUMULATIVE GRADE POINT AVERAGE FOR MALE STUDENTS FEMALE STUDENTS AND TOTAL (MALE AND FEMALE) STUDENTS A1, A2, AND A3 RESPECTIVELY

<table>
<thead>
<tr>
<th>Variable</th>
<th>Mean</th>
<th>SD</th>
<th>Students</th>
</tr>
</thead>
<tbody>
<tr>
<td>A1--Nelson-Denny</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&quot;Total&quot; Score</td>
<td>49.102</td>
<td>25.771</td>
<td>78</td>
</tr>
<tr>
<td>Cumulative Grade</td>
<td>2.236</td>
<td>.603</td>
<td>MALES</td>
</tr>
<tr>
<td>Point Average</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A2--Nelson-Denny</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&quot;Total&quot; Score</td>
<td>51.466</td>
<td>26.173</td>
<td>103</td>
</tr>
<tr>
<td>Cumulative Grade</td>
<td>2.323</td>
<td>.598</td>
<td>FEMALES</td>
</tr>
<tr>
<td>Point Average</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A3--Nelson-Denny</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&quot;Total&quot; Score</td>
<td>50.447</td>
<td>25.955</td>
<td>181</td>
</tr>
<tr>
<td>Cumulative Grade</td>
<td>2.286</td>
<td>.600</td>
<td>TOTAL</td>
</tr>
<tr>
<td>Point Average</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

# TABLE 2

PEARSON PRODUCT-MOMENT CORRELATION COEFFICIENT AND t-TEST RESULTS FOR HYPOTHESES A1, A2 AND A3

<table>
<thead>
<tr>
<th>Hypothesis</th>
<th>df</th>
<th>Pearson r</th>
<th>t</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hypothesis A1</td>
<td>76</td>
<td>.3119</td>
<td>2.89***</td>
</tr>
<tr>
<td>Hypothesis A2</td>
<td>101</td>
<td>.2804</td>
<td>2.95***</td>
</tr>
<tr>
<td>Hypothesis A3</td>
<td>179</td>
<td>.2961</td>
<td>4.17***</td>
</tr>
</tbody>
</table>

* p > .05  
*** p > .01  
- not significant at .05 level
The second phase of the study was designed to determine the relationship between the "Total" Nelson-Denny percentile rank mean scores and four levels of cumulative first year grade point averages of the subjects sub-grouped in the following ranges:

- **Range I** -- 0.00 - 1.99
- **Range II** -- 2.00 - 2.49
- **Range III** -- 2.50 - 2.99
- **Range IV** -- 3.00 - 4.00

The "Total" Nelson-Denny percentile rank mean scores was compared between sub-groups and tested for significance.

Six null hypotheses were generated to determine if a significant relationship would be found between the "Total" score on the Nelson-Denny Reading Test and academic performance at four sub-group range levels. The six hypotheses were stated as follows:

**B1:** Male and female students in range IV (3.00-4.00 CGPA) will have "Total" percentile rank scores on the Nelson-Denny Reading Test significantly (.05 level) higher than male and female students in range I (0.00-1.99 CGPA).

**B2:** Male and female students in range IV (3.00-4.00 CGPA) will have "Total" percentile rank scores on the Nelson-Denny Reading Test significantly (.05 level) higher than male and female students in range II (2.00-2.49 CGPA).
B3: Male and female students in range IV (3.00-4.00 CGPA) will have "Total" percentile rank scores on the Nelson-Denny Reading Test significantly (.05 level) higher than male and female students in range III (2.50-2.99 CGPA).

B4: Male and female students in range III (2.50-2.99 CGPA) will have "Total" percentile rank scores on the Nelson-Denny Reading Test significantly (.05 level) higher than male and female students in range II (2.00-2.49 CGPA).

B5: Male and female students in range III (2.50-2.99 CGPA) will have "Total" percentile rank scores on the Nelson-Denny Reading Test significantly (.05 level) higher than male and female students in range I (0.00-1.99 CGPA).

B6: Male and female students in range II (2.00-2.49 CGPA) will have "Total" percentile rank scores on the Nelson-Denny Reading Test significantly (.05 level) higher than male and female students in range I (0.00-1.99 CGPA).

A summary of means and standard deviations for the prediction and criterion variables of each sub-group is provided in Table 3.

The means of the "Total" scores on the Nelson-Denny Reading Test in relation to sub-group range levels indicate positive relationships as recorded in Table 3. Subjects in Range IV with academic averages between 3.00 and 4.00 earned "Total" mean scores on the Nelson-Denny at the 68.1190 percentile, subjects in Range III with academic averages between 2.50 and 2.99 earned "Total" mean scores on the Nelson-Denny at the 53.9893 percentile, subjects in Range II with academic averages between 2.00 and 2.49 earned "Total"
mean scores on the Nelson-Denny at the 49.5536 percentile and
subjects in Range I with academic averages below a 2.00 earned
"Total" mean scores on the Nelson-Denny Reading Test at the 41.8947
percentile rank.

**TABLE 3**

SUMMARY OF THE MEANS AND SD OF THE "TOTAL" PERCENTILE
RANK SCORES OF THE NELSON-DENNY READING TEST AND
CUMULATIVE FIRST YEAR GRADE POINT AVERAGES FOR
THE FOUR SUB-GROUP RANGE LEVELS

<table>
<thead>
<tr>
<th>Sub-group</th>
<th>Levels</th>
<th>Mean</th>
<th>SD</th>
<th>Students</th>
</tr>
</thead>
<tbody>
<tr>
<td>Range IV</td>
<td>(3.00-4.00)</td>
<td>68.1190</td>
<td>23.997</td>
<td>21</td>
</tr>
<tr>
<td>Range III</td>
<td>(2.50-2.99)</td>
<td>53.9893</td>
<td>22.656</td>
<td>47</td>
</tr>
<tr>
<td>Range II</td>
<td>(2.00-2.49)</td>
<td>49.5536</td>
<td>27.619</td>
<td>56</td>
</tr>
<tr>
<td>Range I</td>
<td>(0.00-1.99)</td>
<td>41.8947</td>
<td>24.210</td>
<td>57</td>
</tr>
</tbody>
</table>
TABLE 4

*T-TEST RESULTS OF THE COMPARISONS BETWEEN THE "TOTAL"
NELSON-DENNY MEAN SCORES OF FOUR SUB-GROUP
RANGE LEVELS

<table>
<thead>
<tr>
<th>Hypothesis</th>
<th>Between Sub-group Ranges</th>
<th>df</th>
<th>t</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hypothesis B1</td>
<td>Range IV - Range I</td>
<td>76</td>
<td>4.25***</td>
</tr>
<tr>
<td>Hypothesis B2</td>
<td>Range IV - Range II</td>
<td>75</td>
<td>2.72***</td>
</tr>
<tr>
<td>Hypothesis B3</td>
<td>Range IV - Range III</td>
<td>66</td>
<td>2.33*</td>
</tr>
<tr>
<td>Hypothesis B4</td>
<td>Range III - Range II</td>
<td>102</td>
<td>2.61***</td>
</tr>
<tr>
<td>Hypothesis B5</td>
<td>Range III - Range I</td>
<td>101</td>
<td>.88-</td>
</tr>
<tr>
<td>Hypothesis B6</td>
<td>Range II - Range I</td>
<td>111</td>
<td>1.57-</td>
</tr>
</tbody>
</table>

* p > .05

*** p > .01

- not significant at .05 level

The six null hypotheses as listed in Table 4 show the t-test results for comparisons between Nelson-Denny "Total" score means of the four sub-group ranges.

1. Hypothesis B1 was rejected at the .01 level of significance.

2. Hypothesis B2 was rejected at the .01 level of significance.
3. Hypothesis B3 was rejected at the .05 level of significance.

4. Hypothesis B4 was rejected at the .01 level of significance.

5. Hypothesis B5 was not rejected. The difference between the "Total" score means of sub-groups Range III and Range II was not significant.

6. Hypothesis B6 was not rejected. The difference between the "Total" score means of sub-groups Range II and Range I was not significant.

In the third phase of studying the problem, an examination was made of the number and percent of subjects with sub-test percentile rank scores in vocabulary, comprehension and reading rate below the 30th national percentile rank relative to four range levels of cumulative first year grade point averages. Subjects with no sub-test percentile rank scores below the 30th national percentile were also examined. The latter is recorded in Table 5.

A total of 86 subjects showed no sub-test scores on the Nelson-Denny Reading Test below the 30th national percentile.
Table 5 revealed that 21 percent of the subjects with no sub-test scores below the 30th national percentile was recorded in Range IV (3.00-4.00), 24 percent for subjects in Range III (2.50-2.99), 29 percent in Range II (2.00-2.49) and 26 percent of the subjects with no sub-test scores below the 30th national percentile was recorded in Range I (less than 2.00).

A total of 47 subjects in four sub-group ranges earning one of three sub-test scores below the 30th national percentile on the Nelson-Denny Reading Test is recorded in Table 6. Subjects in Range IV with cumulative academic averages between 3.00 and 4.00 showed no sub-test scores below the 30th national percentile in
vocabulary and comprehension. One subject scored below the 30th national percentile in reading rate.

Forty-one percent of the subjects with one of three sub-test scores below the 30th national percentile was recorded in Range III (2.50-2.99). Thirteen percent scored below the 30th national percentile in vocabulary, nine percent in comprehension and 19 percent in reading rate.

Twenty-three percent of the subjects with one of three sub-test scores below the 30th national percentile was recorded in Range II (2.00-2.49). Eleven percent scored below the 30th national percentile in vocabulary, six percent in comprehension and six percent in reading rate.

Thirty-four percent of the subjects with one of three sub-test scores below the 30th national percentile was recorded in Range I (less than 2.00). Sixteen percent scored below the 30th national percentile in vocabulary, nine percent in comprehension and nine percent in reading rate.
TABLE 6

NUMBER AND PERCENT OF SUBJECTS IN SUB-GROUP RANGE LEVELS EARNING ONE OF THREE SUB-TEST SCORES BELOW THE 30th NATIONAL PERCENTILE ON THE NELSON-DENNY READING TEST

<table>
<thead>
<tr>
<th>Sub-group</th>
<th>Cumulative Academic Average</th>
<th>Sub-test</th>
<th>Number</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Range IV</td>
<td>3.00 - 4.00</td>
<td>VOC</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td></td>
<td>COMP</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td></td>
<td>RR</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Sub-Total</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Range III</td>
<td>2.50 - 2.99</td>
<td>VOC</td>
<td>6</td>
<td>13</td>
</tr>
<tr>
<td></td>
<td></td>
<td>COMP</td>
<td>4</td>
<td>9</td>
</tr>
<tr>
<td></td>
<td></td>
<td>RR</td>
<td>9</td>
<td>19</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Sub-Total</td>
<td>19</td>
<td>41</td>
</tr>
<tr>
<td>Range II</td>
<td>2.00 - 2.49</td>
<td>VOC</td>
<td>5</td>
<td>11</td>
</tr>
<tr>
<td></td>
<td></td>
<td>COMP</td>
<td>3</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td></td>
<td>RR</td>
<td>3</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Sub-Total</td>
<td>11</td>
<td>23</td>
</tr>
<tr>
<td>Range I</td>
<td>0.00 - 1.99</td>
<td>VOC</td>
<td>8</td>
<td>16</td>
</tr>
<tr>
<td></td>
<td></td>
<td>COMP</td>
<td>4</td>
<td>9</td>
</tr>
<tr>
<td></td>
<td></td>
<td>RR</td>
<td>4</td>
<td>9</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Sub-Total</td>
<td>16</td>
<td>34</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Total</td>
<td>47</td>
<td>100</td>
</tr>
</tbody>
</table>

N = 181

VOC = Vocabulary

COMP = Comprehension

RR = Reading Rate
TABLE 7
NUMBER AND PERCENT OF SUBJECTS IN SUB-GROUP RANGE LEVELS EARNING A COMBINATION OF TWO SUB-TEST SCORES BELOW THE 30th NATIONAL PERCENTILE ON THE NELSON-DENNY READING TEST

<table>
<thead>
<tr>
<th>Sub-group</th>
<th>Levels</th>
<th>Sub-tests</th>
<th>Number</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Range IV</td>
<td>3.00-4.00</td>
<td>VOC-COMP</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td></td>
<td>VOC-RR</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td></td>
<td>COMP-RR</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Sub-Total</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>Range III</td>
<td>2.50-2.99</td>
<td>VOC-COMP</td>
<td>2</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td></td>
<td>VOC-RR</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td></td>
<td>COMP-RR</td>
<td>4</td>
<td>11</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Sub-Total</td>
<td>6</td>
<td>17</td>
</tr>
<tr>
<td>Range II</td>
<td>2.00-2.49</td>
<td>VOC-COMP</td>
<td>7</td>
<td>20</td>
</tr>
<tr>
<td></td>
<td></td>
<td>VOC-RR</td>
<td>3</td>
<td>8</td>
</tr>
<tr>
<td></td>
<td></td>
<td>COMP-RR</td>
<td>6</td>
<td>18</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Sub-Total</td>
<td>16</td>
<td>46</td>
</tr>
<tr>
<td>Range I</td>
<td>0.00-1.99</td>
<td>VOC-COMP</td>
<td>7</td>
<td>20</td>
</tr>
<tr>
<td></td>
<td></td>
<td>VOC-RR</td>
<td>2</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td></td>
<td>COMP-RR</td>
<td>3</td>
<td>8</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Sub-Total</td>
<td>12</td>
<td>34</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Total</td>
<td>35</td>
<td>100</td>
</tr>
</tbody>
</table>

N = 181

VOC = Vocabulary

COMP = Comprehension

RR = Reading Rate
Table 7 shows the number and percent of subjects with a combination of two sub-test scores below the 30th national percentile. The total number of subjects in the four sub-group ranges was 35. One subject in Range IV (3.00-4.00) scored below the 30th national percentile in vocabulary-comprehension. Seventeen percent of the subjects with a combination of two sub-test scores below the 30th national percentile were recorded in Range III (2.50-2.99). Six percent had low percentile rank scores in vocabulary-comprehension, none in vocabulary-reading rate and 11 percent in comprehension-reading rate. Forty-six percent of the subjects with a combination of two sub-test scores below the 30th national percentile were recorded in Range II (2.00-2.49). Twenty percent had low percentile rank scores in vocabulary-comprehension, eight percent in vocabulary-reading rate and 18 percent in comprehension-reading rate.

Thirty-four percent of the subjects with a combination of two sub-test scores below the 30th national percentile were recorded in Range I (0.00-1.99). Twenty percent had low percentile rank scores in vocabulary-comprehension, six percent in vocabulary-reading rate and eight percent in comprehension-reading rate.

Table 8 reveals the number and percent of subjects with all three sub-test scores below the 30th national percentile on the Nelson-Denny Reading Test. The total number of subjects recorded
in the four sub-group ranges were 13. Only one subject in Range IV (3.00-4.00) and one subject in Range III (2.50-2.99) scored below the 30th national percentile in all three sub-tests. Four or 31 percent of the subjects in Range II (2.00-2.49) had low percentile rank scores in all three sub-tests and seven or 54 percent in Range I (less than 2.00) scored below the 30th national percentile in all three sub-tests on the Nelson-Denny Reading Test.

**TABLE 8**

NUMBER AND PERCENT OF SUBJECTS IN SUB-GROUP RANGE LEVELS WITH ALL THREE SUB-TEST SCORES BELOW THE 30th NATIONAL PERCENTILE ON THE NELSON-DENNY READING TEST

<table>
<thead>
<tr>
<th>Sub-group</th>
<th>Levels</th>
<th>Sub-tests</th>
<th>Number</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Range IV</td>
<td>3.00-4.00</td>
<td>VOC-COMP-RR</td>
<td>1</td>
<td>7.5</td>
</tr>
<tr>
<td>Range III</td>
<td>2.50-2.99</td>
<td>VOC-COMP-RR</td>
<td>1</td>
<td>7.5</td>
</tr>
<tr>
<td>Range II</td>
<td>2.00-2.49</td>
<td>VOC-COMP-RR</td>
<td>4</td>
<td>31.0</td>
</tr>
<tr>
<td>Range I</td>
<td>0.00-1.99</td>
<td>VOC-COMP-RR</td>
<td>7</td>
<td>54.0</td>
</tr>
</tbody>
</table>

| Total     | 13       |            | 100.0  |

\(N = 181\)

VOC-COMP-RR = Vocabulary, Comprehension, and Reading Rate
**TABLE 9**

A SUMMARY OF THE NUMBER AND PERCENT OF SUBJECTS IN SUB-GROUP RANGE LEVELS WITH DIFFERENTIAL SUB-TEST SCORES IN VOCABULARY, COMPREHENSION AND/OR READING RATE BELOW THE 30th NATIONAL PERCENTILE ON THE NELSON-DENNY READING TEST

<table>
<thead>
<tr>
<th>Below the 30th National Percentile In:</th>
<th>0 of 3 Subtests</th>
<th>1 of 3 Subtests</th>
<th>2 of 3 Subtests</th>
<th>3 of 3 Subtests</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1 N %</td>
<td>2 N %</td>
<td>3 N %</td>
<td>4 N %</td>
<td>5 N %</td>
</tr>
<tr>
<td>Range IV (3.00-4.00)</td>
<td>18 85</td>
<td>1 5</td>
<td>1 5</td>
<td>1 5</td>
<td>21 100</td>
</tr>
<tr>
<td>Range III (2.50-2.99)</td>
<td>21 45</td>
<td>19 40</td>
<td>6 13</td>
<td>1 2</td>
<td>47 100</td>
</tr>
<tr>
<td>Range II (2.00-2.49)</td>
<td>25 45</td>
<td>11 20</td>
<td>16 28</td>
<td>4 7</td>
<td>56 100</td>
</tr>
<tr>
<td>Range I (0.00-1.99)</td>
<td>22 39</td>
<td>16 28</td>
<td>12 21</td>
<td>7 12</td>
<td>57 100</td>
</tr>
</tbody>
</table>

N = 181
In Table 9, a summary of the number and percent of subjects in sub-group range levels with differential sub-test scores in vocabulary, comprehension and/or reading rate below the 30th national percentile on the Nelson-Denny has been recorded.

Eighty-five percent of the subjects in Range IV (3.00-4.00) had no sub-test scores below the 30th national percentile on the Nelson-Denny, one or five percent had one sub-test in the low percentile rank, one or five percent had a combination of two sub-tests in the low percentile rank and one or five percent had sub-test scores below the 30th national percentile in all three sub-tests (vocabulary, comprehension and reading rate).

Forty-five percent of the subjects in Range III (2.50-2.99) had no sub-test scores below the 30th national percentile on the Nelson-Denny, 40 percent had one sub-test in the low percentile rank, 13 percent had two sub-tests in the low percentile rank and one or two percent of the subjects in sub-group Range III had all three sub-tests below the 30th national percentile.

Forty-five percent of the subjects in Range II (2.00-2.49) had no sub-test scores below the 30th national percentile on the reading test, 20 percent had one sub-test in the low percentile rank, 28 percent had low percentile rank scores on two sub-tests and seven
percent of the subjects was below the 30th national percentile on all three sub-tests.

TABLE 10

THE NUMBER AND PERCENT OF SUBJECTS IN SUB-GROUP RANGE LEVELS SCORING ABOVE THE 50th NATIONAL PERCENTILE, AT AND ABOVE THE 30th NATIONAL PERCENTILE AND BELOW THE 30th NATIONAL PERCENTILE ON THE NELSON- DENNY READING TEST

<table>
<thead>
<tr>
<th>Sub-group</th>
<th>Levels</th>
<th>Above the 50th %ile*</th>
<th>At and Above the 30th %ile</th>
<th>Below the 30th %ile</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>N</td>
<td>%</td>
<td>N</td>
<td>%</td>
</tr>
<tr>
<td>Range IV</td>
<td>3.00-4.00</td>
<td>18</td>
<td>85</td>
<td>20</td>
<td>95</td>
</tr>
<tr>
<td>Range III</td>
<td>2.50-2.99</td>
<td>25</td>
<td>53</td>
<td>41</td>
<td>87</td>
</tr>
<tr>
<td>Range II</td>
<td>2.00-2.49</td>
<td>28</td>
<td>50</td>
<td>39</td>
<td>70</td>
</tr>
<tr>
<td>Range I</td>
<td>0.00-1.99</td>
<td>17</td>
<td>30</td>
<td>36</td>
<td>63</td>
</tr>
</tbody>
</table>

N = 181

* Number and percent of students placed in the 50th %ile column are also computed in the next column at and above the 30th %ile.
Thirty-nine percent of the subjects in Range I (less than 2.00) had no sub-test scores below the 30th national percentile on the Nelson-Denny, sixteen percent had one sub-test below the 30th national percentile, 21 percent had a combination of two sub-tests below the 30th national percentile and twelve percent of the subjects with grade point average less than 2.00 for their freshmen year had scores below the 30th national percentile on all three sub-tests.

In the fourth phase of studying the problem, the number and percent of subjects scoring below the 30th national percentile, at and above the 30th national percentile and above the 50th national percentile were recorded in Table 10. The Nelson-Denny "Total" scores of the subjects at the above indicated national percentile were recorded relative to the sub-group academic range levels.

Eighty-five percent of the subjects in Range IV (3.00-4.00) earned "Total" scores on the Nelson-Denny above the 50th national percentile. Ninety-five percent of the subjects in Range IV (3.00-4.00) earned "Total" Nelson-Denny scores above the 30th national percentile and only one subject in Range IV (3.00-4.00) scored below the 30th national percentile on the Nelson-Denny Reading Test.

Fifty-three percent of the subjects in Range III (2.50-2.99) earned "Total" scores on the Nelson-Denny above the 50th national percentile. Eighty-seven percent of the subjects in Range III
(2.50-2.99) earned "Total" Nelson-Denny scores above the 30th national percentile and 13 percent scored below the 30th national percentile.

Fifty percent of the subjects in Range II (2.00-2.49) earned "Total" scores on the Nelson-Denny above the 50th national percentile. Seventy percent of the subjects in Range II (2.00-2.49) earned "Total" Nelson-Denny scores at and above the 30th national percentile and 30 percent of the subjects in Range II (2.00-2.49) scored below the 30th national percentile on the Reading Test.

Thirty percent of the subjects in Range I (less than 2.00) earned "Total" scores on the Nelson-Denny Reading Test above the 50th national percentile. Sixty-three percent earned "Total" Nelson-Denny scores at and above the 30th national percentile and thirty-seven percent of the subjects scored below the 30th national percentile.

**Discussion of the Findings**

Chapter IV records the findings in testing hypotheses one, two and three concerning within-group Pearson product moment correlation coefficients (r) computed for males, females and the total group including both males and females. The correlations obtained reflected a moderate association between "Total" scores on the Nelson-Denny Reading Test and cumulative first year grade point averages of the
subjects in the study.

The Pearson product moment correlation coefficients (r) computed for males and females were moderately good. Males were slightly better than females with an average between the two for the total group. The above composed the first phase of studying the problem.

The second phase of studying the problem recorded in Chapter IV revealed findings in testing hypotheses four, five, six, seven, eight and nine to determine the relationship between "Total" percentile rank scores on the Nelson-Denny Reading Test and four range levels of cumulative first year grade point averages earned by the subjects.

The means and standard deviation of the "Total" Nelson-Denny score relative to sub-group academic range levels was computed for the total group. Table 3 reveals that the mean "Total" scores on the Nelson-Denny increases with levels of academic averages at each sub-group range level from Range I (0.00-1.99) to Range IV (3.00-4.00). These findings in phase two substantiate the positive correlations found in phase one. The correlations were not very high but were found significant.

The t-test results of comparisons between Nelson-Denny "Total" mean scores and cumulative grade point averages was significantly higher when sub-groups with greater deviation in academic averages
were compared. The level of significance began to decrease as subgroups are compared in closer academic proximity to each other. Importantly it was found that comparisons between Range III and Range II, Range II and Range I were not significant at the .05 level. (See Table 4). This finding indicates that a closer relationship is evident between Nelson-Denny Test scores and academic performance of those students who have achieved at a higher level of academic performance as opposed to those who achieved at a lower level.

In the third phase of studying the problem, it was found that a near equal number of subjects at all four sub-group academic levels had no sub-test scores below the 30th national percentile. Table 5 showed a surprisingly number of subjects with cumulative first year grade point averages below the 2.00 yet these students had no sub-test scores below the cut-off point where a high probability of a reading problem existing.

As revealed in Table 6, the high achieving subjects as indicated by grade point average Range IV (3.00-4.00) had no sub-test scores below the 30th national percentile in vocabulary or comprehension, the sub-tests from which the "Total" Nelson-Denny score is derived.

Vocabulary was the sub-test in which the highest number of lower academic achievers (Range II (2.00-2.49) and Range I (less than 2.00)) scored below the 30th national percentile and reading rate
was the sub-test in which the highest number of students in Range IV (3.00-4.00) and Range III (2.50-2.99) scored below the 30th national percentile. These findings suggest that word power and comprehension are important factors in scholastic achievement of Afro-American freshmen enrolled in special compensatory programs.

A two-dimensional examination of reading ability relative to four levels of academic performance is provided in Table 7. The number and percent of subjects in a combination of two sub-tests below the 30th national percentile is evident of sub-groups Range II (2.00-2.49) and Range I (less than 2.00). The number and percent of students with scores below the 30th national percentile for sub-groups Range II (2.00-2.49) and Range I (0.00-1.99) as expected is higher than Range IV (3.00-4.00) and Range III (2.50-2.99). One would, however, not expect Range II (2.00-2.49) to show a higher number of students below the 30th national percentile in two sub-tests than Range I, students with less than a 2.00 academic average after one year of college. Vocabulary and comprehension appears to be the combination of two sub-tests in which low percentile scores were earned for subjects in the two lowest sub-group ranges.

A three-dimensional picture showing the number and percent of subjects in sub-group range levels with all three sub-test scores below the 30th national percentile on the Nelson-Denny is provided
in Table 8. As respected, the subjects with less than a 2.00 grade average after one year of college were the highest number with scores below the 30th national percentile in three sub-tests on the Nelson-Denny Reading Test. The total number of subjects show reading deficiencies in three sub-tests is relatively small. Thus, making it somewhat difficult to generalize these findings when other than extreme high and low sub-groups are considered.

A summary of the number and percent of subjects in sub-group range levels with differential sub-test scores in vocabulary, comprehension and/or reading rate below the 30th national percentile on the Nelson-Denny is provided in Table 9. The percent of subjects with no sub-test below the 30th national percentile in Range I (less than 2.00) is surprisingly large. The differential sub-test scores in the first, second and third columns for Range II and Range I reveal some similarity. Some distinction is revealing between Range II and Range III. The latter showing a decrease in the number of sub-tests below the 30th national percentile.

In Phase IV as shown in Table 10, the number and percent of subjects scoring below the 30th national percentile and above the 50th national percentile are recorded relative to the academic sub-group range levels. In this test of the Reading Instrument, one would expect the score earned on the Nelson-Denny to have high association
with academic averages. An example is, that scores above the 50th national percentile should associate with high academic averages and a high percent of students with scores below the 30th national percentile should be on academic probation at the end of their first academic year.

An examination of Table 10 revealed the following findings:

1. Subjects in Range IV (3.00-4.00) achieving above average and high academic averages also scored above the 50th national percentile on the Nelson-Denny total score.

2. Approximately 50 percent of the subjects in Range III (2.50-2.99) and Range II (2.00-2.49) earned "Total" Nelson-Denny scores at or above the 50th national percentile. One noticeable difference between the two sub-groups is noted in the number of subjects below the 30th national percentile.

3. An important finding in this phase of studying the problem is noted in the number of subjects in Range I (less than 2.00) with "Total" Nelson-Denny scores above the 50th national percentile.

4. "Total" Nelson-Denny scores at and above the 30th national percentile was high for the number of subjects in each sub-group. Range IV, III, II and I showed 95,
87, 70, and 63 percent of the subjects respectively above the 30th national percentile.

5. The number of subjects with "Total" Nelson-Denny scores below the 30th national percentile showed a decrease as the academic sub-group levels increase. Range I V, III, II, and I showed five percent, 13 percent, 30 and 37 percent of the subjects respectively below the 30th national percentile.

These findings indicate a moderate association or correlation with "Total" Nelson-Denny percentile rank scores and cumulative first year grade point averages of the subjects in this study.

While the "Total" Nelson-Denny percentile rank scores for males and females in the investigation did correlate significantly with cumulative first year grade point averages, the comparison of sub-groups in academic Range II (2.00-2.49) and Range I (less than 2.00) provides little or no assistance in distinguishing students who can be academically successful through their freshmen year in college. This factor is further substantiated by the performance of sub-group Range I (less than 2.00) on the Nelson-Denny Reading Test. Subjects with an average less than 2.00 after one year of college also earned "Total" Nelson-Denny percentile rank mean score at the 41st percentile. This is a mean score substantially higher than the 30th national
percentile, the cut-off point which establishes a high probability of a reading problem existing.

A prediction danger is revealed in the predictor and criterion variables as we observe the difference between Nelson-Denny Reading Test scores and academic averages for Range I (0.00-1.99) and Range II (2.00-2.49).

This observation is important from two perspectives:

1. The number of students with no sub-test scores below the 30th national percentile is almost equal, which raises the question of reading achievement as being one of several variables such as motivation, desire, purpose, need and others necessary for success in college.

2. The number of students with scores below the 30th national percentile in two and three sub-test areas is almost equal for earned averages of the two academic levels.

Using the Nelson-Denny as a measuring instrument for predicting general levels of first year academic achievement appears to have some utility to determine high (3.00-4.00) average students from low average and average students (0.00-1.99 and 2.00-2.49 respectively).
When screening the low average students from the average students according to the findings in this study there is a danger of the predictive validity of the instrument relative to academic of selected Afro-Americans college freshmen. The findings from the results of the study suggest that scores on the Nelson-Denny provides an over-prediction for the subjects relative to their academic standing after one year of college. A large number of subjects in Range I (0.00-1.99) would have been given a high probability of earning a "C" or better because of the high scores earned on the Nelson-Denny Reading Test.

The probable use of the Nelson-Denny appears valid when one examines the low score deficiencies in the number of sub-tests occurring relative to the academic levels of the sub-groups. This factor appears very evident when one finds fewer low scores or deficiencies on sub-tests of the students in Range IV with earned grade point averages between 3.00 and 4.00 after their first year of college. In lower range levels the number of students increases in low sub-test scores as their academic averages fall down.

From the findings represented in Chapter IV, some variation between "high" and "low" academic achievement is associated with "high" and "low" Nelson-Denny "Total" scores between sub-groups.
Except, within one sub-group (Range I -- less than 2.00) high Nelson-Denny scores are associated with low academic averages. This latter factor raises some question as to whether the Nelson-Denny "Total" score is a valid predictor of academic achievement for all students. If the national cutoff score at the 30th percentile was raised 10 points, we would still have a high percentile of students scoring above the 40th percentile yet these students were on probation at the end of the academic year.

This chapter presented an analysis of the data and the results of the findings of the study. The final chapter presents the summary, implications and concludes with recommendations.
CHAPTER V

SUMMARY, IMPLICATIONS AND RECOMMENDATIONS

Summary

The general purpose of this study was to investigate the relationship between scores of the Nelson-Denny Reading Test and academic performance for 181 culturally different Afro-American students who enrolled as freshmen at Ohio State University autumn quarter, 1971.

The major objective of the study was to determine the usefulness of the Nelson-Denny Reading Test as a measure for predicting general levels of first year academic achievement of selected Afro-American freshmen students. To accomplish this objective, the investigation was organized into four study phases.

Phase I sought to determine the relationship between the "Total" Nelson-Denny percentile rank scores and cumulative first year grade point averages of the subjects in the study. Phase II investigated the relationship of the "Total" Nelson-Denny percentile rank scores and four levels of cumulative first year grade point.
averages sub-grouped in the following ranges:

- Range I — 0.00 - 1.99
- Range II — 2.00 - 2.49
- Range III — 2.50 - 2.99
- Range IV — 3.00 - 4.00

Phase III investigated differential sub-test percentile rank scores of the subjects relative to the four levels of cumulative first year grade point averages.

Phase IV examined the subjects in sub-group ranges relative to scores earned on the Nelson-Denny at percentile levels predictive of academic performance.

On the basis of this study, the following findings were identified concerning the associated relationship between scores on the Nelson-Denny Reading Test and academic performance of selected Afro-American freshmen students.

1. It was found that there is a significant relationship between the "Total" Nelson-Denny percentile rank scores and cumulative first year grade point averages of culturally different Afro-American male and female freshmen students.

2. It was found that there is a significant relationship between the "Total" Nelson-Denny percentile rank scores and differential sub-group levels of academic
achievement as indicated by sub-group grade point average levels for culturally different Afro-American freshmen students.

3. It was found that the number of sub-tests (vocabulary, comprehension and/or reading rate) on which subjects scored above and below the 30th national percentile (the "cut-off" point below which a high probability exists of the student experiencing a reading problem) is to some degree associated with high and low academic achievement.

4. It was found that the vocabulary sub-test scores rather than comprehension or reading rate sub-test scores tends to associate to a greater degree with low academic achievement of the subjects in this study.

5. It was found that in combinations of two low sub-tests scores where a high probability of a reading problem existing, vocabulary-comprehension tends to associate to a greater degree with subjects of lower academic achievement than sub-test combinations in vocabulary-reading rate or comprehension-reading rate.

6. It was found that in combinations of two low sub-tests scores where a high probability of a reading problem
existing, comprehension-reading rate is associated to a
great degree with subjects of average academic achieve­
ment as well as subjects achieving below average during
their freshmen year in college.

7. It was found that subjects scoring below the 30th national
percentile on all three sub-tests (vocabulary, comprehen­
sion and reading rate) are likely to be placed on academic
probation by the end of their freshmen year.

8. It was found that some subjects experiencing reading
problems as indicated by low scores on one, two, or
three sub-tests do earn cumulative grade point averages
at or above 2.00 during their freshmen year in college.

9. It was found that high and low scores on the Nelson­
Denny Reading Test are associated to some degree with
high and low academic achievement in college for culturally
different Afro-American freshmen students.

10. It was found that Nelson-Denny "Total" scores above the
30th and 50th national percentile earned by the subjects
in a surprisingly high percent was associated with
academic performance at the probationary level (less than
2.00) of college work.
Implications

One of the most important uses of the Nelson-Denny Reading Test is held to be in predicting academic success, particularly at the college level. Should the instrument be used in this respect, some caution should be taken so as not to operationalize the selective efficiency phenomenon and under predict those students who are motivated to study harder and who will earn the required grades to be successful in college. These students may be inspired to achieve because they realize that opportunities are now available through financial aid and other programs that they never had before. They may be inspired to achieve because they want a better life than their parents or wish to improve the low socio-economic environment in which they were reared. In making use of the Nelson-Denny as a predictive instrument, some caution should be taken to consider elements of over prediction for those students who indicate average and above average reading abilities yet they are academically unsuccessful due to other factors which cannot be determined in the measurement of achievement or reading test.

Obviously, other factors which include reading ability are important in the academic success of students.
While this reading test is not primarily diagnostic in nature according to the authors of the instrument, results of the findings in this study suggest that it does reveal specific strengths and weaknesses in areas of vocabulary, comprehension and reading rate of the subjects in the study.

The hardware of visual materials in remedial reading programs have focused on improving reading rate. The findings in this study reveal that more emphasis should be placed on improving the vocabulary power of the culturally different Afro-American students. In support of the literature that culturally different Afro-Americans may find vocabulary as a specific area of weakness was to some degree upheld by this study. It was found that most of the subjects who scored low in vocabulary also scored lower in comprehension and reading rate in that order. Vocabulary appears to be the key to improve the reading abilities of culturally different Afro-American freshmen. This would suggest that remedial reading efforts should be focused on improving vocabulary power as well as comprehension and reading rate. Subjects who scored high in vocabulary, in most cases scored above the reading problem level in comprehension and reading rate.

One important discovery in this study appears to provide some implications for counseling as revealed from scores earned by the
subjects on the Nelson-Denny Reading Test. A surprisingly large percent of the subjects earned scores indicating no problems in reading yet these students were on probation at the end of their freshmen year. Apparently these students were experiencing problems other than reading.

The counseling implications for students who indicate no apparent problem in reading but who are failing their courses does not allow for early identification since academic grades can not be reported until after the first quarter or semester in college. However, after grades are received for the first term, students can be identified for counseling services. Too often the culturally different Afro-American student seeks services after his problem has affected his academic standing over several terms at the University. The counseling implications revealed here can provide to some degree the preventive approach to the student's problem.

Recommendations

1. In research of factors related to reading problems, comparative studies of Afro-American students with high and low reading abilities could be studied on the basis of the following variables:
a. Socio-economic status of parents (including the level of education, income and type of occupation)
b. Residents and location of high school
c. The degree of emphasis in high school on relevant Black literature
d. The racial/ethnic make-up of the student body
e. And other variables deemed pertinent by the researcher

2. Students whose high total scores on the Nelson-Denny Reading Test giving no indications of reading problems and who are at the same time failing academically should generate research studies to answer the following kinds of questions:

a. What types of problems do these students have that affects academic performance?
b. These students were apparently motivated in their earlier educational careers. What are some of the factors that turned them off?

3. Students whose low total scores on the Nelson-Denny which are consistent with low academic averages in college should generate research as follows:

a. Reading development programs should be implemented with new innovative approaches (such as utilizing
black relevant literature in building word power and comprehension) and comparisons can be made with traditional type remedial programs and reading materials. The research following would be valid in determining the type of materials and needs of supportive programs to improve the reading abilities of culturally different Afro-American students.

b. In providing tutorial services, a comparison between the use of unrelated classroom materials and classroom related materials to improve the reading learning and study skills of low academic achieving college students may prove to be useful studies to improve the needed supportive service programs. The Nelson-Denny Reading Test may serve as one instrument to noted difference in pre- and post-measurement.

4. Multiple-correlational studies with high school rank, college entrance test batteries, college first year cumulative grade point average and Nelson-Denny Reading Test would probably improve the prediction accuracy of determining success in college for culturally different Afro-American freshmen students.
5. A follow-up study on all the participants in this study relative to Nelson-Denny Reading Test scores and their future academic standing and finally those who successfully graduate could improve the predictive aspects of the findings in this study. One might assume that those students with high Nelson-Denny scores and poor college academic standing are capable and will pull their averages up. On the other hand, a careful observation could be made on those students who earned low Nelson-Denny scores but who are holding 2.00 plus academic averages at the end of their freshmen year. Will they be successful in their college educational pursuits? If research is generated to answer this question, then the validity of the Nelson-Denny Reading Test as a good predictor of scholastic achievement can be further assessed.
APPENDIX A

LETTER
November 27, 1972

John W. Joyner
154 West 12th Avenue
Student Service Building
Ohio State University
Columbus, Ohio 43210

Dear Professor Joyner:

I am more than pleased to know of your research subject. It is of particular importance. Of necessity we must come to a better understanding of differences with minority groups in the academic environment. While the Nelson-Denny Reading Test is one of the most widely used tests, I know of no research focused on the effectiveness of the test with regard to predicting scholastic success with minority groups.

Your findings in this unexplored area, deserve particular attention from teachers and educators alike. I am looking forward to a summary of your findings.

Sincerely yours,

[Signature]

James I. Brown
Professor of Rhetoric

JIB:1jh
APPENDIX B

MANUAL
PLEASE NOTE:


UNIVERSITY MICROFILMS.