ADULT AGE AND ETHNICITY AS FACTORS IN SUCCESS
ON THE TASP: A MEASUREMENT OF THE TEXAS
ACADEMIC SKILLS PROGRAM (TASP) TEST

DISSERTATION

Presented to the Graduate Council of the
University of North Texas in Partial
Fulfillment of the Requirements

For the Degree of

DOCTOR OF PHILOSOPHY

By

Linda A. Friedman, B.S., M.L.A.
Denton, Texas
August, 1991
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This study examined the association among ethnicity, age, and scores on selected portions of the TASP and MAPS tests. This study further examined if the TASP could identify students for success in college level course work as well or better than selected portion of the MAPS test.

Data were randomly collected from a central data base at a multi-campus community college district in Texas. Two samples were drawn. One was referred to as the TASP group, and the other one was referred to as the MAPS group. A college freshman history course was used as an estimate of reading ability as success in history is highly dependent on good reading skills. Two college freshman math courses were used to estimate math skills. They were comparable in difficulty. One course is required for business majors while the other math course is required for all other majors.

Chi-square analysis was used to determine if there were differences among TASP, MAPS, student age, ethnicity, and passing the college level courses. The tests revealed that:
1. There was no association among passing a college history course, age, and reading portions of either tests;

2. There was no association among passing a college history course, ethnicity, and reading portions of either tests;

3. There was no association among passing the math courses, age, and the math portion of the TASP; and

4. There was no association among passing the math courses, ethnicity, and the math portion of the TASP.

The data for the MAPS math was not retrievable and could not be tested.
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CHAPTER I

INTRODUCTION

As stated in the 1989 TASP Test Registration Bulletin (1988), the major impetus for the development of the Texas Academic Skills Program (TASP) has been A Generation of Failure: The Case for Testing and Remediation in Texas (1986). This report, published by the Texas Higher Education Coordinating Board in 1986, stressed that deficiencies in the basic skills of reading, English, and math prevent many students from achieving success in postsecondary institutions. Through House Bill 2182, the Texas Academic Skills Program (TASP) test was authorized by the Texas Legislature in 1987 to address this need. The TASP is an evaluation tool used to check these specific skill performance areas in an undergraduate degree program. Students first entering any public community college or university after August, 1989 must take and successfully pass all three sections of the test. Failure in any of the three basic areas mandates remedial course work, blockage of enrollment in collegiate-level courses, and denial of a degree. Students may take the test as many times as needed to pass.

There is a need to determine whether differences in scores on the TASP exist between the traditional college age
students and those 35 years or older. Do students aged 35 and over have a higher failure rate on the TASP than those under age 24? There is also a need to determine whether differences in scores on the TASP exist between ethnic groups. TASP scores may offer some answers. As stated in the *Official TASP Test Study Guide* (1989),

The Texas Academic Skills Program (TASP) is an instructional program designed to ensure that students attending public institutions of higher education in Texas have the academic skills necessary to perform effectively in college level course work. The TASP provides advisory programs and support for those students who demonstrate a need in those academic skills. While the TASP includes a testing component, a major focus of the TASP is advisement and educational support for Texas college students. (p. 3)

**Statement of the Problem**

Is there an association between age, ethnicity, and scores on the TASP and MAPS (Multiple Assessment Programs and Services) and does the TASP identify students for success in college level course work as well or better than selected portions of the MAPS test?

Because history is a reading intensive course and success is dependent on having good reading skills, one college freshman history course was used to measure reading skills. From this point on, this course was called the history course.

Two college freshman math courses were used to measure math skills. They were comparable in difficulty. However, one course is required for business majors while the other
course is required for all other majors. From this point on, these courses were called the math courses.

Purpose of the Study

The purposes of the study were:

1. To determine if any differences in proportion exist between the variable pass/fail on selected portions of the MAPS and the variable pass/fail on the TASP;

2. To gather pass/fail information on adults under the age of 24 and adults over the age of 35;

3. To determine if any adult age differences proportionally exist between the variable pass/fail on selected portions of the MAPS and the variable pass/fail on the TASP;

4. To gather pass/fail information on non-Hispanic Whites, non-Hispanic Blacks, and Hispanic ethnic groups;

5. To determine if any ethic differences proportionally exist between the variable pass/fail on selected portions of the MAPS and the variable pass/fail on the TASP;

6. To gather pass/fail information in the history course and the math courses on college students who passed the TASP and the MAPS; and

7. To provide one possible avenue for the comparison of the TASP and MAPS tests.
Hypothesis

Hypothesis 1: There is no difference between passing the history course and passing TASP reading.

Hypothesis 2: There is no difference between passing the history course, passing TASP reading, and the age of the students.

Hypothesis 3: There is no difference between passing the history course, passing TASP reading, and the ethnicity of the students.

Hypothesis 4: There is no difference between passing the history course and passing MAPS reading.

Hypothesis 5: There is no difference between passing the history course, passing MAPS reading, and the age of the students.

Hypothesis 6: There is no difference between passing the history course, passing MAPS reading, and the ethnicity of the students.

Hypothesis 7: There is no difference between passing the math courses and passing TASP math.

Hypothesis 8: There is no difference between passing the math courses, passing TASP math, and the age of the students.

Hypothesis 9: There is no difference between passing the math courses, passing TASP math, and the ethnicity of the students.
The data needed for the following hypotheses were not retrievable. Thus, the following hypotheses could not be tested:

Hypothesis 10: There is no difference between passing the math courses, passing MAPS math, and the age of the students.

Hypothesis 11: There is no difference between passing the math courses, passing MAPS math, and the ethnicity of the students.

Hypothesis 12: There is no difference between passing the math courses and passing MAPS math.

Significance

As stated in the *Elementary School Journal* by the National Commission on Excellence in Education in "A Nation at Risk: The Imperative for Educational Reform" (A Nation at Risk, 1983),

All, regardless of race or class or economic status, are entitled to a fair chance and to the tools for developing their individual powers of mind and spirit to the utmost. This promise means that all children by virtue of their own efforts, competently guided, can hope to attain the mature and informed judgment needed to secure gainful employment, and to manage their own lives, thereby serving not only their own interests but also the progress of society itself. (p. vii)

Not included in this statement is another very important demographic characteristic: that of age. The need for adult educational reform is also well-documented.
In *A Generation of Failure: The Case for Testing and Remediation in Texas Higher Education* (1986) by the Committee on Testing in Austin, it is stated that "Thirty-seven percent of businesses participating in a national survey said they must teach reading, writing, and math skills to their employees because the secondary schools did not do the job" (p. 9).

Three-fourths of the major corporations are instructing new workers in these same basic skills. Private corporations spend nearly as much on education and training for their employees each year as the nation's colleges and universities spend on their students. In 1982, corporate education cost more than $60 billion. A significant portion of this expenditure each year is used for remedial courses in reading, writing, and mathematics. Many corporate managers are dissatisfied with the basic skills of their new employees (*A Generation of Failure, 1986*).

These concerns and dissatisfactions about the quality of education in America have been taken as a serious challenge to lawmakers and educators across the country. Massive educational reforms have been initiated in many states since the publication of "A Nation at Risk" (1983).

Texas echoed these national concerns. These hopes and dissatisfactions were taken seriously and House Bill 2182 was enacted in response to these concerns. This bill
empowered the creation of the Texas Academic Skills Program (TASP).

The District 50 legislative representative in Austin, Wilhelmina Delco, states that the taxpayers of Texas have a right to expect a meaningful, quality college degree for their children. These degrees should not be diluted. College graduates in Texas should be able to write a report, read a training manual, and do basic math. Presently, this is not always so. The TASP has been designed to address and correct these needs by screening students for college upper level course work and requires that the institutions offer remediation in the area where the student fails to pass the test (W. Delco, telephone conversation, March 6, 1990).

As stated in a letter from Kenneth Ashworth, Commissioner of Higher Education of the Texas Higher Education Coordinating Board,

The Texas Academic Skills Program represents one of the most ambitious and potentially far-reaching educational reforms in this state's history. It makes an explicit link between assessment and instruction. It places the emphasis on identifying those students whose skills in reading, mathematics, and writing are less than those required for college level work and then providing developmental education to improve those skills. TASP will, therefore, play a critical role in enhancing educational quality. (Ashworth, 1989, p. iii)

This study is one attempt to determine the effectiveness of the TASP in dealing with these important state and national issues and to determine whether older adult students and minorities will need special attention.
Definition of Terms

Traditional Age Students

These students are less than 24 years of age.

Non-traditional Age Students

These students are more than 35 years of age.

Remediation

In this study, remediation is the process by which all Texas public colleges and universities are designing, planning, implementing, and evaluating developmental programs to assist the high risk student. These students have discernible deficiencies in such skill areas as reading, writing, and arithmetic. They may not understand the mechanics of good study procedures. They have unimpressive standardized test scores. Their backgrounds of race, culture, and class place them at a disadvantage in contention with the large number of students applying for entry into college (Roueche & Snow, 1977).

TASP

TASP is the Texas Academic Skills Program. This statewide mandatory assessment of academic preparation of college freshmen has been designed to assess minimum competence in the basic skills of English, reading, and math. Students not achieving a passing score on all three sections of the test are required to take remediation to overcome their academic deficiencies (Official TASP Test
The Multiple Assessment Programs and Services of the College Board is another diagnostic tool used to evaluate minimal student competencies in the basic areas of English, reading, and math. These standardized tests were successfully used prior to the implementation of the TASP in the Fall of 1989. They are still being used to help determine student competency levels (Guide to the Use of Descriptive Tests of Language Skills, 1985; Guide to the Use of Descriptive Tests of Mathematics Skills, 1985).

Pass/Fail

For the purpose of this study, a grade of C (70%) or better in history of the United States and math establishes the criterion for passing.

Limitations and Delimitations

Limitation

This study was subjected to the following limitations:

1. The selectivity of the TASP takers.

2. The test is still new, and early test-takers may reflect a group who are somehow more motivated or more ready to succeed.

3. The data are limited to this context and may not be generalizable to other contexts.
Delimitations

1. This study included only one community college district in the state of Texas.

2. This study included only math and reading sections of the respective tests. English sections were not analyzed.

3. MAPS math data were not retrievable.

Assumptions

The following assumptions were made for this study:

1. That, given the use of two groups who took the TASP at different times, there were no significant changes made in test questions or test procedures. There were no significant events in the external environment that differentially impacted the two groups.

2. That no significant changes were made in the college freshman history and math courses between Fall, 1988 and Summer, 1990.
CHAPTER II

REVIEW OF THE LITERATURE

National Concerns

Because of his concern with the American educational system, T. H. Bell, former Secretary of Education, established the National Commission on Excellence in Education on August 16, 1981. He directed the Commission to examine the quality of education in the United States and to report to the country and to him in 18 months (Conditions of Education, 1980; Nation at Risk, 1983).

This report, entitled "A Nation at Risk: The Imperative for Educational Reform," clearly showed that the public's perceptions and Secretary Bell's concerns about education in the United States were correct. This commission found that the educational foundations of our society were being eroded by "a rising tide of mediocrity that threatens our future as a nation" (Conditions of Education, 1982; Nation at Risk, 1983).

Several alarming trends in America's educational system noted in the commission's findings are as follows:

1. Students from the United States were never first or second in international comparisons but, sadly, were last seven times.
2. There are 23 million functionally illiterate adults who cannot pass the simplest tests of reading, writing, and comprehension.

3. The College Board's Scholastic Aptitude Tests (SAT) show average verbal scores fell over 50 points, and average mathematics scores dropped nearly 40 points from 1963 to 1980.

4. Remedial mathematics courses in public four-year colleges increased by 72% between 1975 and 1980. In 1980, one-fourth of all mathematics courses taught in these institutions were remedial mathematics.

5. Recent college graduates' average testing scores were lower.

6. Military and business leaders complained that they must spend millions of dollars in remediation of reading, writing, and mathematics. Alarmingly, one-fourth of the Department of Navy's recruits could not read at the 9th-grade level. Without remediation, these recruits cannot even begin the necessary training in the modern military (Austin, 1982; Conditions of Education, 1983; Nation at Risk, 1983).

National Recommendations

Based upon these findings, the National Commission on Excellence in Education made many recommendations for the
overhaul of public education in America. Recommendations for improvement in public higher education include:

1. A strengthening of high school graduation requirements;

2. A more stringent and quantifiable method of measuring academic performance and student conduct; and

3. A higher level of competency in reading, writing, and mathematics (Allen, 1979; Nation at Risk, 1983).

These findings created a furor in all sectors and sections of America. Other studies conducted since this report, corroborated the results in "A Nation at Risk: The Imperative for Educational Reform" (1983).

National and State Surveys

A large national study entitled Conditions of Education (1985) conducted by the U. S. Department of Education's National Center for Educational Statistics showed that approximately 30% of all college students needed remediation in reading, writing, or mathematics. In 1986, the Southern Regional Education Board (SREB) conducted a survey which showed that 36% of the students in the 15 states that comprise the SREB are deficient in these same skills. The state of Oklahoma showed 25% of its students in need, while Louisiana showed a frighteningly high 56% of its students lacking skills for successful college work. Texas public
institutions reported 30.5% of its students needing remediation (Spence, 1985).

In A Generation of Failure: The Case for Testing and Remediation in Texas Higher Education (1986), the Texas Higher Education Coordinating Board stated, "The Educational Testing Service monitored a twenty year decline in college admission test scores." The Educational Testing Service reported that this decline reflected "less thoughtful and critical reading, less careful writing, fewer basic courses and more electives, and a decline in foreign language study" (p. 13).

Standardized Tests

One of the suggestions of the National Commission on Excellence in Education's report (Nation at Risk, 1983) was a more stringent and quantifiable method of measuring academic performance. This goal could be accomplished through the proper use of standardized tests (Lessinger, 1979; Mehrens & Lehman, 1984). There is much to be said in favor of implementation and maintenance of standardized tests (Hall, 1988; Ingenkamp, 1969). However, there are also valid concerns and objections with the use of these tests (Ingenkamp, 1969; Knight, 1985).

Pro Standardized Tests

Those who advocate the use of standardized tests to quantifiably measuring student behavior state that:
1. The objective collection, analysis, and interpretation of data is critical in refining and improving upon the accuracy of observations. These observations play an important role in evaluation of student performance (Gay, 1985; Green, 1983; Sax, 1980; Sproull, 1981).

2. Validity is the most important quality of any test. Validity is concerned about what a test measures and for whom it is appropriate. If a test is valid, it yields stringent and quantifiable results that measure student performance (Brown, 1985; Ebel & Frisbie, 1986; Gay, 1985).

3. Reliability is the degree to which a test measures whatever it is measuring. It is the accuracy or precision of a measuring instrument and will accurately show over time the same results, yielding good prediction of student achievement (Ebel & Frisbie, 1986; Gay, 1985; Sax, 1980).

4. If a test measures what it alleges to do for a specified group, then correct interpretations are possible (Gay, 1985; Salganik, 1985).

5. The qualities of measurement and evaluation play an important role in defining and refining instruction through stringent, quantifiable methods (Brown, 1985; Knight, 1985; Sax, 1980; Stanley, 1964).

Con Standardized Tests

Even though stringent, quantifiable methods are available for measuring academic performance, care must be taken to minimize valid concerns and objections regarding
their use. Some criticisms state that standardized tests may:

1. Permanently categorize the students. Measurements are not perfect and performance can change. Caution needs to be exercised in interpreting data in this light (Brown, 1985; Sax, 1980).

2. Discriminate against minority groups (Reed, 1987; Sax, 1980; Teale, 1989).

3. Represent an invasion of privacy if the information gathered is used without the examinees' knowledge or consent (McCarty & Cardenas, 1986; Sax, 1980).

4. Create a learning environment where the "teacher teaches to the test." This implies that higher level skills are not taught and students may not be sufficiently challenged (Allen, 1979; Riegel & Lovell, 1980; Schneider, 1978).

5. Create anxiety and thus hamper learning (Linn, 1983; Teale, 1989).


Minimum Competency Tests

Another recommendation (Nation At Risk, 1983) was a higher level of student competency in reading, writing, and math. Minimum competency tests address the recommendation
by: (a) identifying students who lack competence in the basic skills, and (b) remediating these skills to a minimum standard of performance for every student (Preer, 1983; Riegel & Lovell, 1980).

Pro Minimum Competence Tests

Those in favor of minimum competency tests stress the unique ability of the tests to (a) improve student academic performance in basic skills through mandatory remediation programs (Riegel & Lovell, 1980; Roueche & Kirk, 1973); and (b) improve students' self-esteem through better academic performance (Brickell, 1978; Knott, 1975; Roueche & Snow, 1977).

Con Minimum Competence Tests

These special forms of standardized tests raise several unique concerns:

1. What skills and subjects are to be considered basic (Marshall, 1987; Preer, 1983)?

2. Who is responsible for setting higher standards (Medina & Neill, 1988; Madaus, 1983)?

3. What are the minimum acceptable standards of performance (Franzosa, 1984; Madaus, 1983; Schneider, 1978)?

4. How will support services be provided (Medina & Neill, 1988; Preer, 1983)?

5. How can communication between high school and colleges be improved (Preer, 1983; Roueche & Snow, 1977)?
In order to accomplish the goals for higher quality education in public post-secondary institutions, these issues need to be addressed (Brickell, 1978; Mangino & Babcock, 1986; McClung, 1980).

Characteristics of the Nontraditional Adult Learner

Along with these trends, findings, and concerns, older adult learners have unique characteristics that separate them from less mature adult learners. Because minimum competency testing information and the non-traditional adult learner is not yet available in the literature, a discussion on standardized tests and the nontraditional adult learner follows.

Older adult characteristics impact the nontraditional adult learner in all higher education settings including structured standardized testing situations (Brundage, 1980; Darkenwald, 1982). These special characteristics include:


2. The central nervous system's response times decline and adversely affect mental functioning associated with physical factors (Brundage, 1980; Darkenwald, 1982). However, age-related declines in mental ability do not occur in mental functioning related to accumulated experience (Brookfield, 1988; Darkenwald, 1982).
3. Stress, fatigue, and health problems most adversely affect learning with this group of adults (Apps, 1985; Wlodowski, 1985).

4. The perspective of time is unique. Nontraditional adults tend to view time as finite, while less mature adults (and children) perceive time as infinite (Aslanian & Brickell, 1980; Brockett, 1988).

These unique characteristics create a special challenge in learning environments and in structured testing situations. Accommodations need to be made to ensure that academic proficiency is being measured, and not the characteristics of advancing age.

Pro Nontraditional Adults in a Standardized Testing Situation

The following characteristics are positive factors affecting nontraditional adult learners in a standardized testing situation:

1. Adults often enter into learning and performance activities highly motivated. Quite often, they do not require additional stimulation from outside sources (Brundage, 1980; Wlodkowski, 1985).

2. Adult learning tends to focus on the needs and tasks of the individual’s life situation. If the standardized test is perceived as important, motivation is increased (Apps, 1985; Aslanian & Brickell, 1980).
3. Past experiences and self-confidence of the adult learner often creates a willing environment conducive to change and success in the testing situation (Brookfield, 1988; Brundage, 1980).

Con Nontraditional Adults in a Standardized Testing Situation

The following characteristics are negative factors affecting nontraditional adult learners in a standardized testing situation:

1. Adults who are experiencing extreme stress or anxiety do not process information accurately (Brundage, 1980; Tough, 1979).

2. Time constraints produce added stress for the nontraditional learner (Brundage, 1980; Darkenwald & Merriam).

3. Physical discomforts greatly affect performance results with this age group (Brundage, 1980; Darkenwald & Merriam, 1982).

4. Adults perform best when the content is relevant to present concerns or past experiences (Brookfield, 1988; Wlodkowski, 1985).

Thus, these factors may influence an older adult's score on the MAPS and the TASP.
State Surveys

State and local governments across the country have been working with educators, education agencies, businessmen, parents, and students to address and correct these problems in education (Burstein et al., 1985; Franzosa, 1984; Resnick & Resnick, 1983). These state and local governments are trying to address the National Commission on Excellence in Education's 1983 recommendations for more stringent and measurable standards of academic performance and higher levels of competency in the basic skills (Pullin, 1981).

These national recommendations have resulted in many diverse state and local college and university testing programs (Burstein et al., 1985; Riegel & Lovell, 1980; Sutter & Rice, 1984). Statewide standardized testing programs have been established in some states. They are offering assessment programs to overcome basic skills deficiencies (A Generation of Failure, 1986; College Level Academic Skills Test Review, 1988; Marshall, 1987; Mingle, 1985). These standardized testing programs are utilized to improve the quality of higher education through program evaluation, student placement, and student progression through course work (Brown, 1985; Burstein et al., 1985; Mingle, 1985; Pullin, 1981). In some states, student achievement is being used as a criterion for judging and assessing state-wide programs. In other state systems, new
mandated state initiatives use original testing instruments and require participation of public colleges and universities (Mingle, 1985; Sutter & Rice, 1984).

Statewide Minimum Competency Testing

Some states use standardized exams to establish minimum competency levels for student progression in higher education (Burstein et al., 1985; Competency Testing, 1978; Mingle, 1985; Riegel & Lovell, 1980). Other systems are also using these exams to selectively screen teacher education students, while others are using various combinations of these methods. Other states have chosen to allow their local governments to resolve these pertinent issues (Burstein et al., 1985; Marshall, 1987; Riegel & Lovell, 1980; Sticht, 1980).

Many states (such as California, Florida, Georgia, Maryland, Missouri, Ohio, South Dakota, Tennessee, and Texas) are attempting to overcome basic skills deficiencies through assessment programs (Burstein et al., 1985; Franzosa, 1984; Herman & Dorr-Bremme, 1984; TASP Reports & Memo, 1989). The focus of this study is specifically on state-mandated minimum competency tests for college and university students, and the TASP is such a test (Standard Setting, Memo, 1989; TASP Report, Memo, 1989; TASP Test, Campus Mechanisms, 1988).
Several states besides Texas warrant a closer examination. Both New Jersey and Florida had minimum competency tests in place prior to the development of the TASP test. Both of these states were visited by the Texas Committee on Testing prior to the development and implementation of the TASP (A Generation of Failure, 1986; Sticht, 1980; TASP Bias Prevention Activities, 1989).

The New Jersey Program

The New Jersey program was the basic model for the Texas Academic Skills Program test (A Generation of Failure, 1986; TASP Report, 1989). The New Jersey Assessment Test program began in 1978. New Jersey, like Texas, is a tri-ethnic state. It has a large number of immigrant and first-generation students (A Generation of Failure, 1986; Pepin, 1982; Wagner, 1989). This test is given to college and university freshmen after admission procedures are completed to ensure proper placement in reading comprehension, sentence sense, computation, and elementary algebra. Results do not affect admission in any way. Voluntary retesting at the end of the sophomore year gives the state enough information to make pre- and posttest evaluations possible. The problem is defined and the students needing remediation have follow-up remediation at state colleges and universities (A Generation of Failure, 1986; Mingle, 1985).
During the 10-year period of operation, the results have remained quite stable.

The results from Fall, 1986 may be seen in the data appearing in Table 1.

Table 1

Results of the New Jersey Basic Skills Placement Testing Program, Fall, 1986

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<th>Elementary Algebra</th>
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</thead>
<tbody>
<tr>
<td>Percentage appeared</td>
<td>27</td>
<td>30</td>
<td>15</td>
</tr>
<tr>
<td>proficient</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Percentage appeared</td>
<td>41</td>
<td>23</td>
<td>26</td>
</tr>
<tr>
<td>proficient in some areas</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Percentage lacked</td>
<td>33</td>
<td>47</td>
<td>60</td>
</tr>
<tr>
<td>proficiency</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note. From Wagner (1989) and Review Information on the TASP (January 23, 1989)

The Florida Program

The Florida program, called the College Level Academic Skills Test (CLAST), is usually given during the second semester of the sophomore year. It also measures reading, writing, and math skills. Between 1984 and 1989, the CLAST pass-fail standards gradually became more stringent. This process enabled Florida to accommodate more rigorous state-mandated high school graduation standards (College Level...
Between 1984 and 1986, test scores of Florida students generally improved (College Level Academic Skills Test Review, 1988; A Generation of Failure, 1986). Minority test scores improved significantly. Florida A & M University, a historically black institution, reported an increase in students passing the CLAST from 39% in 1983 to 61% in 1985 (College Level Academic Skills Test Review, 1988; A Generation of Failure, 1986). In 1988, even with these successes, the Florida State Post Secondary Education Commission made further recommendations for improvement of the CLAST. Among the suggestions offered were:

1. Improving the validity of the writing test;
2. Improving communications between feeder high schools, state universities, and community colleges;
3. Tracking the performance of students at each institution to identify at-risk students; and
4. Reinforcing essential skills throughout the entire curriculum rather than in mathematics and English courses alone (Blumenstyk, 1989).

Evaluations of the New Jersey and Florida Programs

The New Jersey and Florida testing programs showed Texas several important elements (College Level Academic

1. It is critical that faculty be involved in the basic skills testing program.
2. This involvement ensures the acceptance of a basic skills program.
3. This involvement ensures the quality of the program.
4. This involvement also helps ensure the acceptance of testing and remediation in general.
5. Testing and remediation must be implemented together.

These minimum competency state-mandated programs are working. College and university students who complete remediation programs have:

1. Greatly improved test scores;
2. Better retention rates than those who never needed remediation;
3. Almost identical grades to non-remedial students two years later; and
Texas' Concerns

With these models as a guide, Texas began to develop its own program for Texas students. In 1986, a report prepared by the Committee on Testing for the Texas Higher Education Coordinating Board, entitled *A Generation of Failure: The Case for Testing and Remediation in Texas Higher Education* (*A Generation of Failure, 1986*), spurred the development of the TASP. This report was Texas' version of "A Nation at Risk: The Imperative for Educational Reform." The low level of academic preparation of Texas college students was well documented and clearly addressed. The report estimated that 30% of Texas college freshmen lack the basic skills of reading, writing, or mathematics. Thousands of Texas college graduates do not understand written materials, cannot do basic mathematics, and cannot write a coherent paragraph.

From all sectors of Texas society, similar concerns were echoed about the quality of higher education in Texas:

1. A bank president stated that well-trained finance job seekers often could not pass oral and written communication skills screening tests. He said that spelling and grammar errors landed many resumes and letters in the trash bins.

2. A major aerospace corporation stated it must provide training in advanced problem solving techniques for its top engineer recruits. Poor oral and written
communication skills prevented many engineers from being promoted to administrative positions.

3. A metropolitan police force stated that recruits lack basic skills. These basic skills are so deficient that it is necessary to teach cadets how to write sentences and paragraphs. Otherwise, simple accident reports would not be properly filled out.

4. A large insurance company has on staff a full-time instructor. The instructor's job is to teach basic writing and language skills to other employees, many of whom are college graduates.

5. A journalist stated that a survey of newspaper editors had been done by the Associated Press. It reported that journalism graduates do not have appropriate basic skills. Many recent graduates have poor writing and oral communication skills. Many of these graduates do not even have the habit of reading a newspaper (A Generation of Failure, 1986).

Texas' Recommendations

   Recommendations for improving the preparedness of students in Texas included:

1. A minimum competency, statewide test to be given to all freshmen public college and university students;

2. Reading, writing, and mathematics skills would be measured by the test;
3. Remedial course work would be mandated for all students found to be functioning at inappropriately low levels;

4. Advanced course work would be blocked, and denial of a degree and some certificates was suggested for those students not able to pass the test; and

5. Advisory and remedial support for students was recommended through a commitment of resources on testing (A Generation of Failure, 1986; Platt, 1989; Texas Academic Skills Program (TASP) Test: Information Summary, 1988).

The legislative response to A Generation of Failure: The Case for Testing and Remediation in Texas Higher Education was House Bill 2182, passed in the spring of 1987. This bill took very seriously the documentations and recommendations of the Committee on Testing of the Texas Higher Education Coordinating Board (Pepin, 1982; Spence, 1985). Many of the committee's recommendations were passed into law. The legislature in Texas clearly was alarmed at the seriousness of the educational shortcomings in Texas, and thus TASP began (personal communication, W. Delco, March 6, 1990, June 1990; personal communication, A. Faulkner, October, 1989). Because the Texas Academic Skills Program is a major educational reform effort, it is an important avenue for strengthening educational quality (Ashworth, 1989).
The Texas Academic Skills Program (TASP)

The Texas Academic Skills Program (TASP) is a two-part program. First, TASP assesses the reading, writing, and mathematics skills of college freshmen. Secondly, it requires remediation for students lacking proficiency in basic skills to do college work. TASP is also a test for teacher candidates in Texas.

All students must take the test before completion of nine college-level semester hours. If another entry placement test is given to freshmen by the college or university, these students have until the accumulation of 15 semester hours to take the TASP (Official TASP Test Study Guide, 1989; 1989 TASP Test Registration Bulletin, 1988). There is a $24.00 fee for taking the exam; this fee is the responsibility of the student. Some financial aid is available, but it is a minimal amount (Official TASP Test Study Guide, 1989; 1989 TASP Test Registration Bulletin, 1988).

If a student does not pass all three sections of the test, remediation is required. However, remediation is mandatory only for sections not passed. Only the section(s) not passed must be retaken. A student may take the test or test sections as many times as necessary in order to pass. No public college or university student entering a Texas institution of higher learning after the Fall, 1989 can graduate from many certificate programs or any associate
degree program unless successful completion of all three sections has been accomplished. Neither will a baccalaureate degree be granted until all three sections of the test have been passed (Official TASP Test Study Guide, 1989; 1989 TASP Test Registration Bulletin, 1988).

TASP Test Development

Great care was taken to be as objective as possible for and to the population of Texas. To achieve these ends, a major cooperative effort was undertaken (Mangan, 1989). The test development process involved thousands of Texas university faculty members who worked with the Texas Higher Education Coordinating Board, the Texas Education Agency, and the National Education System (Official TASP Test Study Guide, 1989; Review Information on the Texas Academic Skills Program, 1989; TASP Test Administration Manual, 1989).

Five groups of Texas educators met at various stages of the TASP development process. They were the (a) Regional Review Forum, (b) Bias Review Panel, (c) Content Advisory Committee, (d) Content Validation Panel; and (e) Standard Setting Panel (Platt, 1989; TASP Bias Prevention Activities, 1989; TASP Test Administration Manual, 1989).

According to the Official TASP Test Study Guide (1989) and the Texas Academic Skills Program Test Administration Manual (1989), the objectives were to: (a) define skills to be measured on the test, (b) develop the test instrument to
measure these skills, and (c) recommend performance standards for each section of the test.

Test questions were based on approved skills lists in reading, mathematics, and writing. Document input from administrators, educators, and legislators helped determine the appropriateness of these skills as entry-level course work. Review and confirmation by educational and administrative leaders further helped equity reviewers determine the appropriateness of each question (Carlson, 1986; Review Information on the TASP, 1989; TASP Bias Prevention Activities, 1989; TASP Test Administration Manual, 1989).

The Standard Setting Panel polled several hundred college and university faculty members who gave their best professional judgments as to the percentage of students who would be able to correctly answer each test question (Review Information on the TASP, 1989; TASP Bias Prevention Activities, 1989).

National Evaluation Systems conducted a skills survey in the Spring, 1988. This was to confirm the appropriateness of the content of the TASP. The survey gathered information from college and university faculty, public school teachers, entering freshmen students, and teacher education students (Review Information on the TASP, 1989; TASP Bias Prevention Activities, 1989).
National Evaluation Systems then used these surveys and results to empirically determine the appropriateness of the skills identified (Review Information on the TASP, 1989; TASP Test Administration Manual, 1989). The skills list was then reviewed by three of the TASP committee groups in four separate review cycles. They were the: (a) Regional Review Forum, (b) Bias Review Forum, and (c) Content Advisory Committee. Their job was to recommend a list of skills to be eligible for testing (TASP Bias Prevention Activities, 1989; 1989 TASP Test Registration Bulletin, 1988).

National Evaluation Systems then trial tested the TASP in October, 1988. Approximately 5,600 Texas students participated in this tryout of TASP test items. NES used this opportunity to empirically evaluate the performance of trial-test items and to identify test questions needing revisions or removal from the test (Review Information on the TASP, 1989; TASP Bias Prevention Activities, 1989; TASP Test Administration Manual, 1989).

The TASP committees then used this try-out data to review and refine the content of the test questions, where necessary (Review Information on the TASP, 1989; TASP Bias Prevention Activities, 1989; TASP Test Administration Manual, 1989). The validity of the test items was reviewed for item accuracy, match to skill, and freedom from bias by the Content Validation Panel. This provided a double-check
for empirical data gathered by NES (Review Information on the TASP, 1989; TASP Bias Prevention Activities, 1989).

The Standard Setting Panel then reviewed test items to help determine the passing score standards for the TASP test. Recommendations from the Standard Setting Panel then were made to both the THECB and the State Board of Education for final approval. The Content Advisory Committee also made final recommendations to the THECB and TEA based upon the input from the Regional Review Forum and the Content Advisory Committee (Review Information on the TASP, 1989; TASP Bias Prevention Activities, 1989).

TASP Bias Prevention

The THECB, TEA, and NES have been very concerned with test bias. Bias prevention has been a major focus of the test since the program's beginning. In the Official TASP Test Study Guide (1989), it is stated that,

The TASP test materials are fair to all the diverse population groups involved in Texas. Since the test is a fundamental requirement for those students seeking to take upper-division courses towards a baccalaureate or an associate degree or certificate or seeking admission to teacher education programs, it is essential that the test be equitable to all examinees. (p. 5)

However equitable the TASP may be, standardized tests produce a small percentage of students being able to pass the courses, but not the test itself. The TASP as a standardized test is no exception to this phenomenon. Many measures were utilized to achieve equity. Among them were:
1. The composition of each of the five TASP review groups themselves. Each group reflected the ethnic, gender, racial, and regional diversity of Texas (Official TASP Test Study Guide, 1989; Review Information on the TASP, 1989; TASP Bias Prevention Activities, 1989).

2. The Bias Review Panel. The main goal of this TASP committee was to review all test materials from all sources for bias. This group was made up of approximately 30 Texas educators and represented the various minority groups (Official TASP Test Study Guide, 1989; Review Information on the TASP, 1989; TASP Bias Prevention Activities, 1989; TASP Test Administration Manual, 1989).

3. Bias prevention teams were trained and utilized by NES to develop draft test items (TASP Bias Prevention Activities, 1989).

4. Trial test reevaluation by NES. These results were reconsidered, based on (a) student motivation and preparation and (b) demographics of college freshmen in Texas (Carlson, 1986; Review Information on the TASP, 1989; TASP Bias Prevention Activities, 1989).

5. The TASP is a criterion referenced test. Student performance can be measured and compared with a standard of basic academic skills knowledge rather than with performance against other test takers (Review Information on the TASP, 1989; TASP Bias Prevention Activities, 1989).
6. Much publicity about the skills measured by the TASP has been accomplished. This has enabled students to become acquainted with and master skills measured by the test (Official TASP Study Guide, 1989; Review Information on the TASP, 1989; TASP Bias Prevention Activities, 1989; TASP Registration Bulletin, 1989).


TASP Administration

In order to be fair to all students, the test administration includes the following features:

1. Standardized administrations. All policies and procedures will be the same at each test site. Testing administrators have been uniformly and thoroughly trained in the test situation which results in consistency across all sites (Gorth, O'Reilly, & Pinsky, 1975).

2. Convenience to examinees. The dates and sites for test administration were established for the students' convenience. In the first year of the TASP, the time period from 1989 through June, 1990, there were eight scheduled
test administrations at over 100 test centers across Texas (R. McCrary, personal communication, June, 1990).

3. Individualized treatment. Registration is accomplished on a one-to-one basis. Special arrangements and accommodations will be provided for any handicapped students who need them. Special arrangements will be provided for students who need an alternate test date because of religious reasons.

4. Test security. The THECB, TEA, and NES have taken precautions to ensure that no student or group of students gains unfair advantage on the test.

5. Standardized procedures for scoring all three areas of the test have been established.

6. Diagnostic reporting. The score results provide information on student performance in reading, writing, and math. This data helps determine appropriate placement, advisement, and assistance (Gorth, O'Reilly, & Pinsky, 1975; Official TASP Guide, 1989; Review Information on the TASP, 1989; The TASP Test Administration Manual, 1989).

Potential TASP Benefits

The ability of students to achieve positive results from college faculty rests in good measure with the level of their academic skills. Without an appropriate foundation in the basics of reading, writing, and mathematics, students are handicapped in their higher education performance (A
Generation of Failure, 1986; A Nation at Risk, 1983; Review Information on the TASP, 1989). Texas has made a strong commitment to combat this problem. Through the Texas Academic Skills Program, students with problems in reading, writing, or mathematics will be identified. They are provided with remedial opportunities to improve their levels of basic skills (W. Delco, personal communication, March 6, 1990; A. Faulkner, personal communication, October, 1989; Review Information on the TASP, 1989; TASP Bias Prevention Activities, 1989; TASP Test Administration Manual, 1989).

The impact of the program on higher education is expected to be seen within four to six years. Students with deficiencies will need between two to four semesters of remediation. When these students graduate, Texas ought to be able to clearly see if the TASP goals are being met (A Generation of Failure, 1986; Review Information on the TASP, 1989; Spence, 1985).

The benefits of this program will be long-term and far-reaching. An improvement in the economic and social well-being of Texas and its citizens is a beacon of light for the future. These graduates will be better educated, better qualified to compete and better able to cope with our rapidly changing society (Conditions of Education, 1985; A Generation of Failure, 1986; A Nation at Risk, 1983; Planning for a Literate Work Force, 1986; Snare, 1989).
CHAPTER III

RESEARCH DESIGN

The research design used for this investigation was ex-post facto. It was aimed at discovering if a relationship exists between age, TASP and MAPS performance, selected portions of the scores, and subsequent performance in college-level history of the United States and math courses. It was aimed at discovering if an association exists between ethnicity, TASP and MAPS performance, selected portions of the scores, and subsequent performance in college-level history of the United States and math courses. It was a cross-sectional, archival study using existing records. The samples were randomly selected from the student population. There was no manipulation of variables or random assignment. It was an exploratory study in that it sought to discover rather than to predict.

Procedures for Data Collection

Data were collected at a single point in time from existing records currently held in a central data base at a multicampus community college district in Texas. Data were selected using SAS Version 5.18.

Information randomly collected was as follows:
(a) subjects who have completed the history course;
(b) subjects who have completed the math courses;  
(c) history course grade; (d) math courses grade; (e) TASP date and score; (f) MAPS date and score (MAPS math data were not retrievable); (g) age level; and (h) ethnicity.

Nine hypotheses were used to examine: (a) TASP reading, age, and college freshman history course; (b) TASP reading, ethnicity, and history course; (c) TASP reading and history course; (d) MAPS reading, age, and history course; (e) MAPS reading, ethnicity, and history course; (f) MAPS reading and history course; (g) TASP math, age, and math courses; (h) TASP math, ethnicity, and math courses; and (i) TASP math and math courses.

Because history is a reading intensive course and success is dependent on having good reading skills, one college freshman history course was used to estimate reading skills. Two college freshman math courses were used to estimate math skills. They were comparable in difficulty. However, one course is required for business majors while the other course is required for all other majors.

To test the hypotheses on age, samples of students 24 and younger and those 35 and over were selected. The age of the students in relation to pass/fail, TASP, MAPS, and courses were examined.

To test the hypotheses on ethnicity, samples of each ethnic group were obtained. The ethnic groups which were studied were: non-Hispanic Whites, non-Hispanic Blacks, and
Hispanics. The ethnicity of these students in relation to pass/fail, TASP, MAPS, and courses were examined.

To test the hypotheses on performance of the tests, samples of students from the total student body were selected. The performance of the students in relation to pass/fail, TASP, MAPS, and courses were examined.

Instruments

The two instruments used in this study were the TASP test and the MAPS test. Discussion on both follows.

Texas Academic Skills Program (TASP)

In the Spring of 1987, through House Bill 2182, the Texas legislature mandated an overhaul of Texas public education. Part of this change included academic assistance for entering college freshmen who do not meet the statewide standards.

As stated in the 1989 TASP Test Registration Bulletin (1988) and the Official TASP Test Study Guide (1989), the Texas Higher Education Coordinating Board and the Texas Education Agency cooperated to develop a single test that would serve both as one of the criteria for admission to public and private teacher education programs and as the test mandated by the Legislature for all freshmen college students (Official TASP Test Study Guide, 1989; 1989 TASP Test Registration Bulletin, 1988).
With the professional testing expertise of National Evaluation Systems, Inc., and input from thousands of faculty members from Texas colleges and universities, the TASP test was designed. The first edition of the test was initially implemented statewide in the Fall of 1989. There are three sections of the test: reading, mathematics, and writing. Although there is no time limit per section, students must complete the total exam in five hours (Official TASP Test Study Guide, 1989; 1989 TASP Test Registration Bulletin, 1988).

TASP Reading Section

As stated in the 1989 TASP Test Registration Bulletin (1988), this test consists of approximately 10 reading selections of 300 to 750 words each. The selections represent a variety of subject areas and are similar to reading materials (i.e., textbooks, manuals) that students are likely to encounter during their first year of college. Students will be asked to answer several multiple-choice questions about each selection. As further stated in the 1989 TASP Test Registration Bulletin (1988) and the Official TASP Test Study Guide (1989), skills tested include:

(a) determining the meaning of words and phrases;
(b) understanding the main idea and supporting details in written material; 
(c) identifying a writer's purpose, point of view, and intended meaning; 
(d) analyzing the
relationship among ideas in written material; and (e) using critical reasoning skills to evaluate written material.

**TASP Mathematics Section**

As stated in the *1989 TASP Test Registration Bulletin* (1988), the mathematics section of the TASP test consists of approximately 50 multiple-choice questions covering three general areas: fundamental mathematics, algebra, and geometry. The test questions focus on a student's ability to perform mathematical operations and solve problems. Appropriate formulas will be provided to help the students perform some of the calculations required by the test questions (*Official TASP Test Study Guide*, 1989; *1989 TASP Test Registration Bulletin*, 1988).

The following skills to be tested are outlined in the *Official TASP Study Guide* (1989) and the *1989 TASP Test Registration Bulletin* (1988).

1. **Fundamental mathematics subsection:** Using number concepts and computational skills; solving word problems involving integers, fractions, or decimals (including percents, ratios, and proportions); interpreting information from a graph, table, or chart.

2. **Algebra subsection:** Graphing numbers or number relationships, solving one and two variable equations, solving word problems involving one or two variables, understanding operations with algebraic expressions, solving problems involving quadratic equations.
3. Geometry subsection: Solving problems involving geometric figures, applying reasoning skills.

TASP Writing Section

This section was not included in the data analysis of this study. It is included here for accuracy and for information regarding the total TASP test design. This test consists of two parts: (a) a multiple-choice part and (b) a writing part. The multiple-choice part includes approximately 40 questions assessing a student's ability to recognize various elements of effective writing. The writing sample part requires students to demonstrate their ability to communicate effectively in writing on a given topic.

According to the Official TASP Study Guide (1989) and the 1989 TASP Test Registration Bulletin (1988), the multiple-choice part will test the following skills:

1. Elements of composition subsection: Recognizing purpose and audience; recognizing unity, focus, and development in writing; recognizing effective organization in writing.

All of the above portions of the test are computer scored. The following section is the only one hand scored by two separate readers.

3. Writing sample part: According to the 1989 TASP Test Registration Bulletin (1988) and the Official TASP Study Guide (1989), this consists of one writing assignment in which students are asked to prepare a writing sample of about 300 to 600 words on an assigned topic. Students' writing samples are scored on the basis of how effectively they communicate a whole message to a specified audience for a stated purpose. The following characteristics may be considered in scoring the writing samples:
(a) appropriateness, (b) unity of focus, (c) development, (d) organization, (e) sentence structure, (f) usage, and (g) mechanical conventions (Official TASP Study Guide, 1989; 1989 TASP Test Registration Bulletin, 1988).

Origin, Reliability, and Validity of the TASP

As stated in the 1989 TASP Test Registration Bulletin (1988), the Texas Academic Skills Program (TASP) test provides information about the reading, mathematics, and writing skills of students entering Texas public colleges and universities. Mandated by House Bill 2182 and passed by the Texas legislature in the Spring of 1987, the test was developed in response to growing evidence in Texas and other states that many college students and graduates lack some of
these basic academic skills (1989 TASP Test Registration Bulletin, 1988).

As stated in the Official TASP Test Study Guide (1989), the Texas Higher Education Coordinating Board and the Texas Education Agency jointly developed one test that serves both as a criteria for admission to public and private teacher education programs and as the test mandated by House Bill 2182 for students entering public colleges and universities. In June, 1987, a request for proposals was issued for this program. National Evaluation Systems, Inc. of Amherst, MA was chosen to develop and administer the testing portion of the new skills program. Development of the TASP test began in September, 1987 (Official TASP Test Study Guide, 1989).

As stated in both the TASP Test Administration Manual and the Official TASP Test Study Guide (1989), the test development process was a comprehensive one involving thousands of faculty member from Texas colleges and universities. These professionals, working the TEA, THECB, and NES (1989), recommended skills eligible to be measured on the test, developed the specific test instrument to measure those skills, and recommended performance standards for each section of the test.

National Evaluation Systems, Inc. conducted a field test of the test questions. After revision of the test questions by NES, Texas educators again reviewed the

The reliability coefficient gives an indication of the level of relationships that would be expected between the scores obtained by a group of students on two forms of a test. The Kuder-Richardson inter-item reliability tests on the TASP have produced reliability coefficients ranging from .82 to .88 (M. Kirker, personal phone conversations, May/June 1990).

In January, 1989, the test items were reviewed by the Content Validation Panel to reconfirm their validity. The validity review included a consideration of item accuracy, matched to skill and freedom from bias (Review Information on the TASP, 1989; TASP Bias Prevention Activities, 1989).

As stated in the Texas Higher Education Coordinating Board's TASP memo, one potential threat to the validity of a test is bias. Bias prevention has been a focus of TASP test development since the program's inception. Potential areas of bias that received attention include content, language, offense, stereotypes, and diversity issues related to gender, ethnicity, religion, nationality, age, handicapping condition in cultural, economic, or geographic background (Review Information on the TASP, 1989; TASP Bias Prevention Activities, 1989).
Multiple Assessment Program and Services (MAPS) of the College Board Test

This series of standardized tests was developed by Educational Testing Service in Princeton, New Jersey. The Descriptive Tests of Language Skills (DTLS) and the Descriptive Tests of Mathematics Skills (DTMS) are subtests of the MAPS. According to the Guide to the Use of the Descriptive Tests of Language Skills: Multiple Assessment Programs and Services (MAPS) of the College Board (1985), the DTLS is further divided into five separate tests that may be used individually or together, as best suits a curriculum. The five subtests of the DTLS are as follows: (a) reading comprehension, (b) logical relationship, (c) vocabulary, (d) usage, and (e) sentence structure (Guide to the Use of Descriptive Tests of Language Skills, 1985; Guide to the Use of Descriptive Tests of Mathematics Skills, 1985; Weiss & Jackson, 1985).

Only the reading comprehension and sentence structure portions of the DTLS are described in this study. The DTMS portion of the MAPS is only one test and is described later. Since the mid-1970s, these tests have been used to assist colleges in assigning entering students to appropriate courses in reading, English, and mathematics. Screening and placement for remediation have been effectively accomplished using these test results. Each section of the test is timed, is multiple-choice, and

MAPS Reading Section

According to the Guide to the Use of the Descriptive Tests of Language Skills: Multiple Assessment Programs and Services (MAPS) of the College Board, this test consists of 45 questions to be completed in 30 minutes. The student is asked to read short passages written in a variety of styles about a variety of subjects. Skills tested include: (a) understanding main ideas, (b) understanding direct statements, and (c) drawing inferences (Guide to the Use of Descriptive Tests of Language Skills, 1985).

MAPS Mathematics Section (Descriptive Test of Mathematics Skills or DTMS)

According to the Guide to the Use of the Descriptive Tests of Mathematics Skills: Multiple Assessment Programs and Services (MAPS) of the College Board (1985), this section consists of 26 multiple-choice questions to be answered in 30 minutes. Three general areas are covered: (a) fundamental mathematics, (b) algebra, and (c) geometry (Guide to the Use of Descriptive Tests of Mathematics Skills, 1985).

The Guide to the Use of the Descriptive Tests of Mathematics Skills: Multiple Assessment Programs and
Services (MAPS) of the College Board (1985) states the skills to be tested are:

1. Fundamental mathematics subsection: Defining symbols, defining abbreviations, dividing fractions, multiplying fractions, solving word problems, and interpreting information from a graph, table, or chart.

2. Algebra subsection: Defining formulas, solving one and two variable equations, understanding operations, with algebraic expressions, and solving problems with quadratic equations.


MAPS English Section (DTLS Sentence Structure)

This section of the test will not be included in the data analysis of this study. It is included here for information regarding the MAPS design at this Texas community college district.

As stated in the Guide to the Use of the Descriptive Tests of Language Skills: Multiple Assessment Programs and Services (MAPS) of the College Board (1985), the sentence structure subsection of this test consists of 35 questions to be answered in 30 minutes. The student must answer two kinds of questions. The first one asks the student to find and correct the error, if there is one, in the underlined part of the sentence. The second asks the student to
origins, reliability, and validity of the MAPS

As stated in the Guide to the Use of Descriptive Tests of Language Skills and Mathematics Skills: Multiple Assessment Programs and Services (MAPS) of the College Board (1985), the Descriptive Tests of Reading Skills and the Descriptive Tests of Mathematics Skills portions of the Multiple Assessment Programs and Services (MAPS) are offered by the College Board in Princeton, New Jersey. This is a non-profit membership organization that provides tests and other educational services for students, schools, and colleges. The membership is composed of more than 2,000 colleges, schools, school systems, and education associations. Representatives of the members serve on the Board of Trustees, advisory councils, and committees that consider the College Board's programs. They also participate in the determination of its policies and activities (Guide to the Use of Descriptive Tests of Language Skills, 1985; Guide to the Use of Descriptive Tests of Mathematics Skills, 1985).
The reliability coefficient is a necessary condition for validity. Standard error of measurement gives an indication of the extent to which obtained scores may be expected to deviate from students' true scores.

See Table 2 for reliability coefficients and standard error of measurement scores for reading comprehension and math skills of the MAPS.

Table 2

Reliability Coefficients and Standard Errors of Measurement for the Analysis Sample (Form A)

<table>
<thead>
<tr>
<th></th>
<th>Reliability</th>
<th>Standard Error of Measurement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Scores</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reading Comprehension</td>
<td>.89</td>
<td>1.8</td>
</tr>
<tr>
<td>Understanding Main Ideas</td>
<td>.69</td>
<td>1.5</td>
</tr>
<tr>
<td>Understanding Direct Statements</td>
<td>.70</td>
<td>1.3</td>
</tr>
<tr>
<td>Drawing Inferences</td>
<td>.75</td>
<td>1.6</td>
</tr>
<tr>
<td>Total Scores</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Arithmetic Skills</td>
<td>.87</td>
<td>2.1</td>
</tr>
<tr>
<td>Elementary Algebra Skills</td>
<td>.91</td>
<td>2.3</td>
</tr>
<tr>
<td>Intermediate Algebra Skills</td>
<td>.86</td>
<td>2.5</td>
</tr>
<tr>
<td>Functions and Graphs</td>
<td>.84</td>
<td>2.5</td>
</tr>
</tbody>
</table>

According to the *Guide to the Use of Descriptive Tests of Language Skills: Multiple Assessment Programs and Services (MAPS) of the College Board* (1985), content validity in reading included particular problems chosen in each test according to a detailed plan. This plan was designed to ensure that questions which tested different kinds of skills within each area were appropriately represented in the test. The clusters that are identified within the tests reflect several of the categories used in question selection (*Guide to the Use of Descriptive Tests of Language Skills*, 1985; Weiss & Jackson, 1985).

Also stated in the *Guide to the Use of Descriptive Tests of Language Skills: Multiple Assessment Programs and Services (MAPS) of the College Board* (1985), is a second kind of validity relevant to the Descriptive Tests of Language Skills (DTLS) and is indicated by the relationship of scores on the tests to other measures. A study using information from the pilot study examined the relationship of DTLS scores to other measures of language skills: end of term grades in writing courses and scores on essays written especially for the study. Both the DTLS and the special essay exercises were administered at the beginning of the term (*Guide to the Use of Descriptive Tests of Language Skills*, 1985).

Table 3 shows the correlations of the DTLS test scores with scores on two sets of essay exercises.
Table 3

Correlations of DTLS Test Scores with Scores on Two Sets of Essay Exercises

<table>
<thead>
<tr>
<th>DTLS Score</th>
<th>Essay A (analytically scored)</th>
<th>Essay B (holistically scored)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reading Comprehension</td>
<td>.56</td>
<td>.58</td>
</tr>
</tbody>
</table>


As stated in the Guide to the Use of Descriptive Tests of Mathematics Skills: Multiple Assessment Programs and Services (MAPS) of the College Board (1985), the Descriptive Tests of Mathematics Skills (DTMS) are intended to measure specific skills that students need in order to undertake college-level courses. The Development Committee established content specifications so that the tests would be broadly applicable for placement within a typical sequence of introductory mathematics courses (Guide to the Use of Descriptive Tests of Mathematics Skills, 1985).

Sample

Two samples were drawn. One was referred to as the TASP group, and the other one was referred to as the MAPS group. All students included in this study attended one of several colleges in a multicampus community college district.
in Texas. The colleges included are located in urban, suburban, and rural settings. The enrollment on these campuses ranges from approximately 3,000 to 13,000 students.

Because the entire population of MAPS takers covered the period from Fall, 1987 through Spring, 1989, and the entire population of TASP takers from Fall, 1989 through Summer I, 1990, the sample was representative for these community colleges.

Students who took the TASP test from September, 1989 through Summer, 1990 were included in the TASP sample. Only students who took the test for the first time were included to avoid any threat to validity due to practice effects.

Students who took the selected portions of the MAPS test between September, 1987 and May, 1989 were included in the MAPS sample. Again, only students who took the test for the first time were included to avoid practice effects. MAPS math results were not available. For those analyses involving age, students were divided into two groups: those age 24 and under and those over age 35. For those analyses involving ethnicity, students were divided into three ethnic groups: non-Hispanic Whites, non-Hispanic Blacks, and Hispanics. The samples of each ethnic group were selected from the total student population of that ethnicity.

These three groupings were chosen as only they offered sufficient variance for analyses. Groupings of Asians and
other minorities were extremely small and were not included in this study.

Because history is a reading intensive course and success is dependent on having good reading skills, one college freshman history course was chosen to estimate reading skills. Students who took the college history course were used for analysis relevant to performance on the reading tests. Two comparable freshman math courses were used to estimate math skills. One course is required for business majors, while the other course is required for other majors. Students who took the college math courses were used for analysis relevant to performance on the math test.

Procedure for Analysis

The data were summarized, organized, and analyzed as follows:

1. A chi-square test was used to determine if there was an association between performance on TASP and MAPS, passing the class, and age.

2. A chi-square test was used to determine if there was an association between performance on TASP and MAPS, passing the class, and ethnicity.

3. A chi-square test was used to determine whether significant differences existed between those students who passed TASP and MAPS and subsequent performance in the
history course. Mathematics differences could not be
determined. MAPS math data were not retrievable.

For pictorial examples of the analysis planned, refer
to Table 4.

Table 4

**Pictorial Samples of Analysis Planned**

<table>
<thead>
<tr>
<th>Class</th>
<th>TASP (Reading or Math)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Fail</td>
</tr>
<tr>
<td>Fail</td>
<td>Pass</td>
</tr>
<tr>
<td>Pass</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Class</th>
<th>MAPS (Reading)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Fail</td>
</tr>
<tr>
<td>Fail</td>
<td>Pass</td>
</tr>
<tr>
<td>Pass</td>
<td></td>
</tr>
</tbody>
</table>
CHAPTER IV

FINDINGS, CONCLUSIONS, AND RECOMMENDATIONS

Findings

This research compared (a) age, scores on selected portions of the TASP and MAPS, and pass/fail in specified courses; (b) ethnicity, scores on selected portions of the TASP and MAPS, and pass/fail in specified courses; and (c) pass/fail information in specified courses versus pass/fail on selected portions of the TASP and MAPS. The results are as follows:

Hypothesis 1

There is no difference between passing the history course and passing TASP reading. Because the computed $X^2$ value (12.149) exceeds the critical value ($X^2_{0.05} = 3.841$), the null hypothesis is rejected, and the conclusion is that there is a difference between passing the reading portion of the TASP test and passing the history course. Inspection of the data in Table 5 indicates that 370 (74%) passed both the reading portion of the TASP test and the history course. Of the 497, only 15 (3%) failed both the course and the reading portion of the TASP test.
Table 5

**Statistical Measures of Hypothesis 1**

<table>
<thead>
<tr>
<th>History Course</th>
<th>Fail</th>
<th>Pass</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fail</td>
<td>15(3%)</td>
<td>95(19%)</td>
<td>110(22%)</td>
</tr>
<tr>
<td>Pass</td>
<td>17(3%)</td>
<td>370(74%)</td>
<td>387(77%)</td>
</tr>
<tr>
<td>Total</td>
<td>32(6%)</td>
<td>465(93%)</td>
<td>497(99%)</td>
</tr>
</tbody>
</table>

**Note.** Total = 497. Frequency missing = 3. \(X^2 = 12.149\).

P = .000. df = 1.

**Hypothesis 2**

There is no significant difference between passing the history course, passing TASP reading, and the age of the students. Because the computed \(X^2\) value (.2182) does not exceed the critical value \(X^2_{cv} = 3.841\), the null hypothesis can not be rejected, and the conclusion is that there is no relationship between passing the history course, TASP reading, and age.

Inspection of the data in Table 6 indicates that those from the sample who were 35 or older were represented by only 24 students (6%). This small number may reflect the fact that these older students may be avoiding or delaying taking the TASP reading until they feel proficient in the tested skills. Of those students 35 and older, 23 (3%) of the total passed TASP reading while 21 (3%) passed the
history course. Of those students 24 or younger, 409 (53%) passed TASP reading while 323 (42%) passed the history course.

Table 6

Statistical Measures of Hypothesis 2

<table>
<thead>
<tr>
<th>Age</th>
<th>Pass TASP Reading</th>
<th>Pass History</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>24 or younger</td>
<td>409 (53%)</td>
<td>323 (42%)</td>
<td>732 (95%)</td>
</tr>
<tr>
<td>35 and older</td>
<td>23 (3%)</td>
<td>21 (3%)</td>
<td>44 (6%)</td>
</tr>
<tr>
<td>Total</td>
<td>432 (56%)</td>
<td>344 (45%)</td>
<td>776 (101%)</td>
</tr>
</tbody>
</table>

Note. $X^2 = .2182$. $P = .6404$. df = 1.

Hypothesis 3

There is no difference between passing the history course, passing TASP reading, and the ethnicity of the students. Because the computed $X^2$ value (.0520) does not exceed the critical value ($X^2_{cv} = 3.84$), the null can not be rejected, and the conclusion is that there is no difference between passing the history course, passing TASP reading, and the ethnicity of the students.

Inspection of the data in Table 7 indicates that 470 of the non-Hispanic Whites, 462 of the non-Hispanic Blacks, and 465 of the Hispanics passed TASP reading. These numbers represent 18% of the total sample for each ethnic group. Table 7 also indicates that 394 of the non-Hispanic Whites,
380 of the non-Hispanic Blacks, and 390 of the Hispanics passed the history course. These numbers represent 15% of the total sample for each ethnic group.

Table 7

Statistical Measures of Hypothesis 3

<table>
<thead>
<tr>
<th>Race</th>
<th>Pass TASP Reading</th>
<th>Pass History</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non-Hispanic White</td>
<td>470 (18%)</td>
<td>394 (15%)</td>
<td>864 (33%)</td>
</tr>
<tr>
<td>Non-Hispanic Black</td>
<td>462 (18%)</td>
<td>380 (15%)</td>
<td>842 (33%)</td>
</tr>
<tr>
<td>Hispanic</td>
<td>465 (18%)</td>
<td>390 (15%)</td>
<td>855 (33%)</td>
</tr>
<tr>
<td>Total</td>
<td>1397 (54%)</td>
<td>1164 (45%)</td>
<td>2561 (99%)</td>
</tr>
</tbody>
</table>

Note. $X^2 = .0520$. $P = .9744$. df = 1.

Hypothesis 4

There is no difference between passing the history course and passing MAPS reading. Because the computed $X^2$ value (13.070) exceeds the critical value ($X^2_{cv} = 3.841$), the null hypothesis is rejected, and the conclusion is that there is a difference between passing the history course and passing MAPS reading. Inspection of the data in Table 8 indicates that 222 (44%) passed both the reading portion of the MAPS and the history course. Of the 500, 84 (17%) failed both the history course and the reading portion of the MAPS test.
Table 8

Statistical Measures of Hypothesis 4

<table>
<thead>
<tr>
<th>History Course</th>
<th>Fail</th>
<th>Pass</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Fail(17%)</td>
<td>Pass(21%)</td>
<td>Total</td>
</tr>
<tr>
<td>History</td>
<td>84</td>
<td>106</td>
<td>190</td>
</tr>
<tr>
<td>Course</td>
<td>190(38%)</td>
<td>310</td>
<td>500</td>
</tr>
<tr>
<td>Pass</td>
<td>88(18%)</td>
<td>222(44%)</td>
<td>310</td>
</tr>
<tr>
<td>Total</td>
<td>172(35%)</td>
<td>328(65%)</td>
<td>500(100%)</td>
</tr>
</tbody>
</table>

Note. \( X^2 = 13.070 \). \( P = .000 \). \( df = 1 \).

Hypothesis 5

There is no difference between passing the history course, passing MAPS reading, and age of students. Because the computed \( X^2 \) value (0.0234) does not exceed the critical value (\( X^2_{0.05} = 3.841 \)), the null hypothesis can not be rejected, and the conclusion is that there is no difference between passing the history course, passing MAPS reading, and age.

Inspection of the data in Table 9 indicates that of the students 35 and older, 328 passed MAPS reading while 302 passed the history course. Of the students 24 or younger, 348 passed MAPS reading while 315 passed history. These numbers represent 26% of the total sample of age 35 and over passing MAPS reading while 27% of the total sample of age 24 or younger passed MAPS reading. Of the total sample of age
35 and over, 24% passed the history course while 25% of the total sample of age 24 or younger passed the history course.

Table 9

Statistical Measures of Hypothesis 5

<table>
<thead>
<tr>
<th>Age</th>
<th>Pass MAPA Reading</th>
<th>Pass History</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>24 or younger</td>
<td>348 (27%)</td>
<td>315 (24%)</td>
<td>663 (51%)</td>
</tr>
<tr>
<td>35 and older</td>
<td>328 (25%)</td>
<td>302 (23%)</td>
<td>630 (48%)</td>
</tr>
<tr>
<td>Total</td>
<td>676 (52%)</td>
<td>617 (47%)</td>
<td>1293 (99%)</td>
</tr>
</tbody>
</table>

Note. $X^2 = .0234$. $P = 1.0000$. df = 1.

Hypothesis 6

There is no difference between passing the history course, passing MAPS reading, and the ethnicity of the students. Because the computed $X^2$ value (.0870) does not exceed the critical value ($X^2_{cv} = 3.841$), the null hypothesis cannot be rejected, and the conclusion is that there is no difference between passing the history course, passing MAPS reading, and the ethnicity of the students.

Inspection of the data in Table 10 indicates that 337 of the non-Hispanic Whites, 339 of the non-Hispanic Blacks, and 348 of the Hispanics passed MAPS reading. These numbers represent 17% of the total sample for each ethnic group. The history course was passed by 307 non-Hispanic Whites, 314 non-Hispanic Blacks, and 312 of the Hispanics.
These numbers represent 16% of the total sample for each ethnic group.

Table 10

Statistical Measures of Hypothesis 6

<table>
<thead>
<tr>
<th>Race</th>
<th>MAPS Pass</th>
<th>Reading Pass</th>
<th>History Pass</th>
<th>Total Pass</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non-Hispanic White</td>
<td>337 (17%)</td>
<td>307 (16%)</td>
<td>644 (33%)</td>
<td></td>
</tr>
<tr>
<td>Non-Hispanic Black</td>
<td>339 (17%)</td>
<td>314 (16%)</td>
<td>653 (33%)</td>
<td></td>
</tr>
<tr>
<td>Hispanic</td>
<td>348 (17%)</td>
<td>312 (16%)</td>
<td>660 (33%)</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>1024 (51%)</td>
<td>933 (48%)</td>
<td>1957 (99%)</td>
<td></td>
</tr>
</tbody>
</table>

Note. $X^2 = .0870$. $P = .9574$. df = 1.

Hypothesis 7

There is no difference between passing the math courses and passing TASP math. Because the computed $X^2$ value (.093) does not exceed the critical value ($X^2_{0.05} = 3.841$), the null hypothesis can not be rejected, and the conclusion is that there is no difference between passing the math courses and passing TASP math. Inspection of the data in Table 11 indicates that 357 (71%) passed both the math portion of the TASP and the math courses. Of the 500, 137 (27%) failed the math courses, but passed the math portion of the TASP test.
Table 11

**Statistical Measures of Hypothesis 7**

<table>
<thead>
<tr>
<th>Math Course</th>
<th>Fail</th>
<th>Pass</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>TASP Math (General)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fail</td>
<td>2(40%)</td>
<td>137(27%)</td>
<td>139(27.4%)</td>
</tr>
<tr>
<td>Pass</td>
<td>4(0.8%)</td>
<td>357(71%)</td>
<td>361(71.8%)</td>
</tr>
<tr>
<td>Total</td>
<td>6(1.2%)</td>
<td>494(98%)</td>
<td>500(99.2%)</td>
</tr>
</tbody>
</table>

**Note.**  \( X^2 = .093. \) \( P = .761. \) \( df = 1. \)

**Hypothesis 8**

There is no difference between passing the math courses, passing TASP math, and the age of the students. Because the computed \( X^2 \) value (.1184) does not exceed the critical value \( X^2_{cv} = 3.841 \), the null hypothesis can not be rejected, and the conclusion is that there is no difference between passing the math courses, passing TASP math, and age.

Inspection of the data in Table 12 indicates that of those students 35 and over, 493 passed TASP math while 348 passed the math courses. Of those students 24 or younger, 493 passed TASP math while 360 passed the math courses. These numbers represent 29% of the total for both age groups in passing TASP math. These numbers represent 21% of the total for both age groups in passing the math courses.
Table 12

Statistical Measures of Hypothesis 8

<table>
<thead>
<tr>
<th>Age</th>
<th>Pass TASP Math</th>
<th>Pass Math Courses</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>24 or younger</td>
<td>493 (29%)</td>
<td>360 (21%)</td>
<td>853 (50%)</td>
</tr>
<tr>
<td>35 and older</td>
<td>493 (29%)</td>
<td>348 (21%)</td>
<td>841 (50%)</td>
</tr>
<tr>
<td>Total</td>
<td>986 (58%)</td>
<td>708 (42%)</td>
<td>1694 (100%)</td>
</tr>
</tbody>
</table>

Note. $X^2 = .1184$. $P = .7308$. df = 1.

Hypothesis 9

There is no difference between passing the math courses, passing TASP math, and the ethnicity of the students. Because the computed $X^2$ values (.0062) does not exceed the critical value ($X^2_{cv} = 3.841$), the null hypothesis cannot be rejected, and the conclusion is that there is no difference between passing the math courses, passing TASP math, and the ethnicity of the students.

Inspection of the data in Table 13 indicates that 492 of the non-Hispanic Whites, 493 of the non-Hispanic Blacks, and 492 of the Hispanics passed the TASP math. These numbers represent 19% of the total sample for each ethnic group. The math courses were passed by 355 non-Hispanic Whites, 353 non-Hispanic Blacks, and 354 Hispanics. These numbers represent 14% of the total sample for each ethnic group.
Table 13

Statistical Measures of Hypothesis 9

<table>
<thead>
<tr>
<th>Race</th>
<th>Pass TASP Math</th>
<th>Pass Math Courses</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non-Hispanic White</td>
<td>492 (19%)</td>
<td>355 (14%)</td>
<td>847 (33%)</td>
</tr>
<tr>
<td>Non-Hispanic Black</td>
<td>493 (19%)</td>
<td>353 (14%)</td>
<td>846 (33%)</td>
</tr>
<tr>
<td>Hispanic</td>
<td>492 (19%)</td>
<td>354 (14%)</td>
<td>846 (33%)</td>
</tr>
<tr>
<td>Total</td>
<td>1477 (58%)</td>
<td>1062 (42%)</td>
<td>2539 (99%)</td>
</tr>
</tbody>
</table>

Note.  $X^2 = .0062$.  $P = 1.0000$.  df = 1.

The data on MAPS math were not available. The data could not be retrieved from the data base. Therefore, the following three hypotheses were not tested:

**Hypothesis 10**

There is no difference between passing the math courses, passing MAPS math, and the age of the students.

**Hypothesis 11**

There is no difference between passing the math courses, passing MAPS math, and the ethnicity of the students.

**Hypothesis 12**

There is no difference between passing the math courses and passing MAPS math.
Conclusions

The results from this community college district revealed the following:

1. The TASP reading test and the history course did not discriminate against students based on age.
2. The TASP reading test and the history course did not discriminate against students based on ethnicity.
3. The TASP reading test showed a relationship between passing the history course and passing TASP reading.
4. The MAPS reading test and the history course did not discriminate against students based on age.
5. The MAPS reading test and the history course did not discriminate against students based on ethnicity.
6. There is an association between passing MAPS reading and the history course.
7. The TASP math test and math courses did not discriminate against students based on age.
8. The TASP math test and the math courses did not discriminate against students based upon ethnicity.
9. There is an association between passing TASP math and the math courses.
10. The TASP reading test revealed an observable greater pass rate than on the MAPS reading test.
11. The TASP reading test revealed an observable greater pass rate based on student age than on the MAPS reading test.
12. The TASP reading test revealed an observable greater pass rate based on ethnicity than on the MAPS reading test.

The greater observable pass rates of the TASP reading test may be due in part to the structure of time on the TASP test itself. Students have up to five hours to complete all three sections of the test. They may divide their time any way they need to for optimum, individualized performance. This freedom for structuring time is not available on the MAPS. Each section of the MAPS test is rigidly set with time limitations.

The TASP test takers may be experiencing more success because:

1. Fewer time constraints produce a lower anxiety level, resulting in higher proficiency ratings.

2. They may be better able to compensate for slower reading comprehension and reading speed rates based on reduced time constraints.

3. The bias prevention activities established by the Texas Higher Education Coordinating Board, the Texas Education Agency, TASP administrators, and National Evaluation Systems have been effective.

4. College screening techniques may be effectively keeping students from prematurely taking the TASP reading test.
5. The students themselves may be unwilling to take the test until they feel confident in their abilities to pass the TASP reading. There is some indication of this with the small number of adults 35 and over who took TASP reading. Of the 24 who took the test, only 1 person failed both the history course and TASP reading.

Recommendations

1. Further studies are needed to generalize these results to the college students across Texas.

2. Further studies and research are needed to determine the reasons for the apparent failure of the math portion of the TASP to predict college success in math.

3. Further studies and research are needed to determine if the MAPS math section is also a poor predictor of college success in math.

4. Further studies and research are needed to determine why the TASP reading section is a better estimate of student success than the MAPS reading.

5. Further studies and research are needed to determine why so few numbers of older adults have taken the TASP reading section.
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