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ABSTRACT

The purpose of this study was to determine if there is a correlation between a high school student's score on the Tests of Achievement and Proficiency (TAP) and the same student's score on the Georgia High School Graduation Test (GHSGT) in the area of mathematics. Student test scores were secured from 182 students at a middle Georgia high school in mathematics for both tests. The study reveals that a significant relationship does exist between the mathematics scores on these tests. Therefore, the results of the TAP mathematics test are predictive of the results of the GHSGT mathematics test. Appendixes contain TAP and GHSGT skills and objectives and tables of correlations for each student. (Contains 2 tables and 23 references.) (SLD)

A CORRELATIONAL STUDY OF THE TESTS OF ACHIEVEMENT AND PROFICIENCY AND THE GEORGIA HIGH SCHOOL GRADUATION TEST IN THE AREA OF MATHEMATICS

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TABLE OF CONTENTS

ABSTRACT

The purpose of this study was to determine if there is a correlation between a high school student's score on the Tests of Achievement and Proficiency (TAP) and the same student's score on the Georgia High School Graduation Test (GHSGT) in the area of mathematics. Student test scores were secured from 182 students at a middle Georgia high school in the area of mathematics for both of the aforementioned tests. This study revealed that a significant relationship does exist between the math scores on these tests. Therefore, the results of the TAP math test are predictive of the results of the GHSGT mathematics test.

CHAPTER I

Introduction

In this country, if learning has occurred then the norm is that testing is necessary to assess that learning. Never mind that some have test anxiety, some are visual learners, and some are auditory learners just to name a few reasons for low test scores. These differences do not matter. The bottom line is that if learning has occurred, then society dictates that there should be a test that reflects that learning. The saying "the only things certain in life are death and taxes" perhaps should be amended to include tests. Just as sure as a child sets foot into a school, that child will be tested. In fact, before he enters the school, he will be tested. Some perceive testing to be a necessary ill of our society. No matter what one's opinion, one cannot "love them or leave them," one has to "tolerate them and take them." Tests have been around for some time and will be here for perhaps an even longer period. Tests are in this country to stay.

In a local Georgia high school, every ninth grade student is required to take the Tests of Achievement and Proficiency(TAP) (1993). This test assesses two areas, namely, reading and mathematics. At the present time this test is solely used for remediation. If a student scores below a certain percentile, then the student is placed in a Chapter I course for appropriate subjective remediation. The Georgia High School Graduation Test (GHSGT) is given to every eleventh grade student in the spring of their junior year. This test is mandated by the state. There are five tested areas. The subjects tested are reading, writing, mathematics, social studies and science. Both tests score similar content. Recently many news articles have published sad ironies of students failing the Exit Exam. Sad because after completing thirteen or more years of school an exam of this nature can

prohibit a student from graduating with classmates. A local newspaper published an article, "High school exit exam cutting down on seniors who graduate". The article mentions that more than five thousand students failed the science portion after five tries. This account is horrific for all who care and bring several questions to mind. If after more than ten years of the appropriate courses, why do students not score better and pass the exit exam in every subject area? Why or how could a student fail the same test five times? Was there an early indicator for parents and teachers of these failures, perhaps as far back as the ninth grade?

Statement of the Problem

This study will attempt to determine whether the scores on the Tests of Achievement and Proficiency in a local high school might be a forecaster or predictor of Exit Exam scores. If a significant correlation can be found, this will allow educators to aid students before their junior year and before they become seniors and can only leave high school with a certificate. If the TAP scores are a true indicator of Exit scores, students will reap obvious benefits, parents will benefit, administrators and also teachers should benefit. Even persons outside the realms of home and school should reap the benefits.

Purpose of the Study

The purpose of this study is to determine if the scores on the Tests of Achievement and Proficiency given in the ninth grade at a local high school can be a predictor of scores received on the Georgia High School Graduation Test given to all eleventh grade students.

Statement of the Hypothesis

There will be a significant correlation between the math scores on The TAP test administered to the ninth grade class at a local high school and the math scores on the

GHSGT administered to these same students as eleventh grade students, the junior class, at the same local high school.

Definition of Terms

The following terms are defined for the purpose of this study to aid in the understanding and interpretation of the actual study and its results.

Tests of Achievement and Proficiency(TAP)

TAP is a battery of tests designed to determine a student's strengths and weaknesses in the basic area of reading and mathematics. For the purpose of this study we will look at the area of mathematical skills at grade level nine.

TAP Grade Equivalent

One set of scores given for the TAP test is the grade equivalent. These scores represent the numerical measurement of a student's academic status at a specific time, i.e., a student in the ninth grade during the seventh month of the school year should score 9.7(97) in order to be considered at his grade equivalent.

Georgia High School Graduation Test (GHSGT)

GHSGT is a set of tests administered during a student's junior year of high school. The GHSGT is designed to determine a student's mastery of the skills deemed necessary to function away from the high school setting.

Georgia High School Graduation Test Passing Score

The Department of Education requires a minimum score of 500 in each of the tested area of the GHSGT in order for the student to claim mastery in that particular area.

Quality Core Curriculum (QCC)

Quality core curriculum are objectives across the state of Georgia required for each subject taught.

Assumptions

It is assumed that the ninth graders tested were first time ninth graders and the same students were administered the GHSGT. It is also assumed that the administration of each test was similar in setting and situation. Any student who was not in an eleventh grade homeroom at the time of the administration of the GHSGT was not included in the study.

Limitations

This report involves one school, one city, therefore to generalize to other schools would not be possible. The results could be shared with other schools of similar makeup in an effort to suggest what indications are likely.

Significance of the Study

High school graduation is a very important time in the lives of many families. Besides reading, writing, and arithmetic, a student must also meet the minimum competency level for an exit exam to receive a diploma. This exam is not the first achievement test of the student's high school career. Ninth grade students are required to take the TAP test to measure their academic progress at that point. Low scores in the area of mathematics on this test could suggest problems on other tests, namely, the GHSGT which is administered in the eleventh grade. This study will inform administrators, teachers and counselors that the treatment of this problem needs to be upgraded to prevent future failures on the GHSGT mathematics section.

CHAPTER II

REVIEW OF LITERATURE

Introduction

A student would be hard to convince that tests have not been around since the beginning of time. Tests were born out of a need to place and/or classify individuals for various reasons. Tests measure the level of student learning attained during a given time period. These evaluation instruments give conclusive evidence on the level of knowledge and skills under survey.

There are many different types of tests. The "different test types number twenty" (Keeves, 1994, p. 6341) and overlap in purpose. Among the types are Ability Tests, Basic Skills Tests, Closed Tests and Security, Cloze Tests, Cognitive Preference Tests, Intelligence Tests, Achievement Tests (the focus of this study), Performance Tests and Objective Tests--just to name a few. The first useful intelligence test was prepared in 1905 by the French psychologists Alfred Binet and Theodore Simon (Schnitzer, 1994).

The achievement test is one test type used in school systems around the world. These tests assess the outcomes of the teacher's teaching and of the student's learning. Achievement tests range from the basic standardized test to the nationally normed test which is sold commercially. The achievement test also includes the test that is comprised of a set of exercises that may be answered on the chalkboard. Achievement test entail a four-purpose service of "placement, formative assessment, diagnosis and summative assessment" (Keeves, 1994, p. 6341). These components of the test investigate both the teaching and the learning.

Achievement Tests

Achievement testing has been around a long time in the United States. The use of test with published directions and uniform scoring and interpretation is dated as early as the 1840's (Koretz, 1992, p. 1262). Achievement refers to accomplishments and carries the connotation that the accomplishments follow a period of study, training, or practice (Linn, 1992, p. 1). The purpose for achievement tests has grown over the years. Standardized achievement tests are currently used to serve three functions: *individual measurement, monitoring of groups, schools, or systems and accountability.* The emphasis in recent years has grown more toward accountability with teachers as the target group. Teachers owe accountability to students, parents, administrators, each other and the community. To monitor the functions of testing, some states began to use assessment programs. A majority of those implemented by the early 1980's were used as *exit exams* to set minimum standards for graduation from high school (Jaeger, 1982).

Definition of Tests of Achievement and Proficiency

In a local high school, the Tests of Achievement and Proficiency is used for diagnosing individual strengths and weaknesses and achieved competence. TAP was first used as the acronym for Tests of Academic Progress as early as 1964, but in later years evolved to mean Tests of Achievement and Proficiency. Four levels of TAP are published. Each level is paralleled to a specific grade. Level 15 Form J corresponds to grade 9, Level 16 to grade 10, Level 17 to grade 11 and Level 18 to grade 12.

The ETS Test Collection Catalog highlights the descriptors of TAP Level 15 Form J as follows:

> Assesses high school students' progress in the basic skill and basic curricular areas ... The Basic Battery includes Reading Comprehension, Mathematics, Written Expression, and Using Sources of Information. The complete Battery also includes Social Studies and Science. Optional Writing and Listening Tests are also available with Form J. Norms are available ... the complete Battery consists of 344 items. The Basic Battery consists of 229 items. (p. 149)

The TAP has been designed to satisfy content and construct validity. The content validity can be decided by individual schools. The Educator's Desk Reference has reliability and validity recorded as follows:

> The construct validity is based on the median Intercorrelation coefficients of .71 for Level 15 (grade 9) ... The KR-20 internal consistency reliability coefficient for the battery composite was .98 with the range of KR-20 coefficients for the subtests being from .82-.94. For the subtests at the different levels, the standard errors of measurement range form 3.0-3.6. The mean standard error of measurement is 3.3. (p. 283)

TAP has proven to be stable over time. For TAP, the six-month test-retest reliabilities calculated using the Pearson product-moment correlations are consistently high, ranging from .75 to .92, with an average of .82 (Scannell, 1990, p. 11).

Definition of High School Graduation Test

The public demand on educators for accountability in the areas of teaching and student learning of basic skills has "shifted the burden of poor performance from the schools to the students" (McClung, 1978, p. 397). Many states and school districts now require a student to pass a minimal competency test in order to receive a high school diploma. Prior to this state mandated competency exam, in most states, a student earned a high school diploma based on Carnegie units, "defined as the number of hours the student has attended class" (Mehrens & Bond 1990, p. V). The high school transcript of the students whose graduation status hinged on Carnegie units simply reported which courses were taken and passed. The letter grades received by the students in the courses they attended, even with the same title, could have different numerical value and vary considerably. For this reason states are considering setting uniform performance expectations that all high school students must meet and are developing test or assessment systems to certify satisfactory performance (Mehrens & Bond, 1990, p. Vi).

The new tests used to award high school diplomas are fundamentally different from more traditional school-based tests. According to Airasian (1987), the basis of the difference can be seen in three characteristics of the tests.

> First, the new tests are mandated by the state for virtually all of the pupils in a given state. Second, the state mandated testing programs eliminate most of the local district discretion in the selection, administration, content coverage, scoring, and interpretation of the tests. A single, state-approved test that is administered, scored and interpreted according to state guidelines is used across local school district. Third, the tests have built-in

sanctions or rewards associated with specific levels of test performance. (p. 56)

These three characteristics result in greater control by the state of important decisions that have been previously made at the local level. These tests also reveals a "more intrusive form"(Airasian, 1987, p. 56) of testing with clear guidelines for desired performance levels to attain the graduation status.

Definition of Georgia High School Graduation Test

Since the mid 1970's, forty states have mandated standardized testing in their public schools and at least half have instituted tests that must be passed before students can receive a high school diploma (Catterall, 1990, p. 1). One of the aforementioned states requiring the passing of a high school competency exam to receive a diploma is Georgia. In the state of Georgia, Georgia law, (O.C.G.A.,, Section 20-2-281) (Testing guide) requires all students who entered the ninth grade after July 1, 1991 to successfully complete certain curriculum-based achievement tests, namely the GHSGT, in order to be eligible to receive a diploma. These achievement tests are in the content areas of English Language Arts, Mathematics, Writing, Social Studies and Science because the new test assesses a student's mastery of QCC objectives in Language Arts, Math, and Writing, as well as Science and Social Studies (Raymond, 1993). The student still has to attain the local school board's requirements for graduation. This law was written in reference to all students regardless of the specific diploma program. This law's design was such that the graduation tests would be phased in gradually. The first class to take the tests were the students who expected to graduate in Spring, 1995. They only had to successfully complete three parts of the tests, English Language Arts, Mathematics and Writing. The

class of students who expected to graduate in Spring, 1997 were required to also pass the Social Studies portion. The student who expects to graduate in Spring, 1998 and thereafter is expected to also pass the Science portion of the test.

The GHSGT is first administered to students in the eleventh grade. Students have four additional opportunities to pass the tests before graduation. Students are offered the opportunity to receive remediation on any tested area that was not mastered. This free remediation course is offered to the student for twenty days during the summer. The first retest is offered during the summer, another early fall, late fall and then again in the spring of the student's senior year. The student is encouraged to check with the high school guidance counselor for more specific information about retest schedules and opportunities for remediation.

The scores on the graduation test are converted from number of items correct to a scaled score, which is a way of standardizing all graduation test scores (Test guide). The scores are reported on a scale of 400 to 600 with 500 being the standardized passing score for every graduation test. The number of correct items needed to pass each test was determined by a statewide committee of Georgia educators by using a procedure approved by the State Board of Education. Passing is determined by the total number of questions correct on the entire test (Test guide). The tests are divided into strands, content subareas, in order to help teachers and students better prepare for the tests. The total test scores are not simply an average of the strand scores because the strands vary widely in the number of questions they contain.

The reliability of the GHSGT is assessed via one method that results in two coefficients.. The generalizability coefficient for the simple person-by-item design is

equivalent to coefficient alpha and the traditional formula KR-20 (Bunch, 1997, p. 1). The generalizablity coefficient represents the dependability of a decision concerning an individual student at a particular score point. The reliability coefficient for the Spring, 1996 administration of the mathematics portion of the GHSGT ranges from .93 to .96 with a range of 2.92 to 2.22 standard error of measurement.

To be labeled as valid for its purpose of certifying students for graduation from Georgia high school, the GHSGT must meet four criteria:

1. measure what is taught in Georgia high schools,
2. provide a standard that is consistent with what Georgia students need to know and be able to do,
3. provide for consistent measurement of that standard over time, and
4. be free of bias (Bunch, 1997, p. 3).

The validity of the GHSGT has been established over a period of time through the accumulation of evidence that clearly shows that these criteria have been met. In 1991, the Georgia Department of Education conducted a curricular/instructional validity survey of its high schools (Bunch, 1997, p. 4). The survey questioned all of the relevant QCC objectives in search of an answer to the following two questions:

a. Should this objective be assessed on the graduation test? and
b. At what level should this objective be tested (Bunch, 1997, p. 4)?

This survey resulted in the elimination of objectives that the students would not have had an opportunity to learn by spring of the student's eleventh grade year. The results of the survey were presented to groups of Georgia educators and the specific QCC objectives were incorporated into test items designed to meet the QCC specifications. From first to last, the construction of items included in the test has meticulously followed procedures designed to maximize curricular and instructional validity of the tests as defined in the *Debra P.* decision (Bunch, 1997, p. 4).

Literature Review

Review of the Literature on Achievement Tests

Achievement tests "are employed to assess the outcomes of teaching and learning" (Keeves, 1994, p. 6341). The tests are designed to serve four purposes, placement, formative assessment, diagnosis, and summative assessment. They are an essential component of the investigation of learning, and the measurement of the effectiveness of teaching (Keeves, 1994, p. 6342). Summarily, achievement tests are devices for measuring a student's accumulated knowledge and skills (Unger, 1996, p. 15).

Achievement tests are so widely used in educational practice that many attempts have been made to define or construct meaningful scales that will assist in the interpretation of the results of the administration of the test (Keeves, 1994, p. 34). The different types of test scales are *Raw Score Scale, Percentage* and *Mastery Scales,* and *Standard Score Scales.*

The demand and growth of testing have brought about a new controversy, the accountability of the testing industry. Because of great reliance on tests as indicators of individuals' learning and the quality of school, educational programs, and even state educational systems, there is growing concern about testing industry's influence on education in the United States (Haney & Madaus, 1992, p. 1407). Several observers have argued that the testing industry has too much influence on education and employment practices, but it is subject to too little accountability for the quality of the tests produced or for the ways in which they are used (Haney & Madaus, 1992, p. 1409).

Review of TAP

A summary of the TAP is available through the publisher, Riverside Publishing Company located at 8420 Bryn Mawr Avenue, Chicago, Illinois, 60631. The *Tests of Achievement and Proficiency* are designed to provide information about strengths and weaknesses of the instructional program and about skills performance of individual students (Scannell, 1990, p. 3). Fourteen levels of the tests are available and the complete battery includes six tests. The six tests are Reading Comprehension, Mathematics, Written Expression, Using Sources of Information, Social Studies and Science. In the Administrator's Summary, the general description of the TAP is as follows:

> The *Tests of Achievement and Proficiency* together with the *Iowa Tests of Basic Skills (ITBS)*, provide 14 test levels more than any other survey achievement program, in order to ensure accurate grade-to-grade measurement. TAP covers the high school years, grades 9 through 12. The provision of separate, but overlapping, test levels for high school reflects the overlap in the objectives and content of instruction in well-designed curricular programs; there is, therefore, appropriate continuity in measurement that corresponds to good instruction. (Scannell, 1990, pp. 3-4)

Texas like other states has a minimum competency testing program mandated by the state. Beginning with students graduating in 1987, mastery of the exit-level test became a requirement for a diploma in Texas (Rodgers et al., 1991, p. 1). Before the eleventh grade, these same students have been tested in grades 1, 3, 5, 7, and 9 in mathematics, reading, and writing. The Texas exit exam tests language arts and mathematics.

Natalie Rodgers and others (1991) hypothesized that:

> It was expected that after the implementation of a new basic skills test (required for graduation) that (1) basic skills averages would show a significant increase, and that (2) high level skills averages would show a significant decrease. . . The Tests of Achievement and Proficiency (TAP) given at grade 11 were used to detect yearly changes in higher level mathematics skills. Students in grade 11 were selected because the minimum competency test required for graduation is first given and usually mastered by students at this grade. (pp. 4-5)

The results of the study were split. The basic skill average did increase significantly, but high level skills averages did not show a significant decrease. The study was done over a five-year period. After four years of emphasis on the minimum competency test, both basic and high level skills as measured by the TAP went down (Rodgers et al., 1991, p. 6).

A longitudinal study of Dearborn High School students was done to " analyze grade nine student academic growth over a two year period utilizing the results of the Tests of Achievement and Proficiency (Office of Research and Evaluation, 1981, p. 4). A committee of six-members determined:

> The TAP results can be used to help analyze individual student and groups of students' strengths and weaknesses, and to follow a students' academic growth through the high school program. The results can also be helpful in the planning of instruction and revising of courses of study and instructional activities. (Office of Research and Evaluation, 1981, p. 5)

The study revealed a variety of results:

> The 1978 to 1980 composite percentile scores resulted in normal growth (+0 percentile points) over the two years with percentile scores of 56. The curriculum area with the greatest growth is Using Sources of Information (+4 percentile points) followed by Reading Comprehension (+3 percentile points). It seems that a less than normal growth of a negative four percentage points occurred in Written Expression. The 1979 to 1981 results show a greater than normal growth with Composite score increase of 2 percentile points. The greatest growth is shown in Science (+6 percentile points) followed by Using Sources of Information (+4 percentile points) and Social Studies (+4 percentile points). (Office of Research and Evaluation, 1981, pp. 5-6)

The study's committee resolved not to make curriculum and instructional decisions "on the basis of test results alone but the results should be utilized in conjunction with other information also (Office of Research and Evaluation, 1981, p. 9)."

Review of the HSGT Literature

The major strengths of minimum competency testing programs seemed to relate to identifying specific learned objectives for students. The effect of the high school graduation test is unclear (Frahm & Covington, 1979, p. 56). However legal and political ramifications imply that these tests will prevent massive denial of high school diplomas because of competency test scores. The full impact of high school graduation tests continued to be surrounded by uncertainty. One of the major questions concerning these tests was whether emphasis on basic skills and competency testing will provide improved

education for marginal and below average students without limiting higher achieving students. Richard Hinds, consultant for measurement and evaluation for the Dade County Florida school system stated that he believed that the long run effect of the minimum competency testing would be beneficial (Frahm & Covington, 1979, p. 56). In the long haul, American education will accommodate this program just as it has other practices (Frahm & Covington, 1979, p. 56).

Educators in all states and at all levels have been forced to contend with a widespread belief that our society is in trouble because of a decrease in school quality and standards. Data involving illiteracy among the American public have initiated an overabundance of educational reforms. These reforms vary in their focus with many dealing with the improvement of the quality of teachers and teaching through new career ladders. Other reforms may change the academic experiences offered pupils in public schools. These types of reforms include "longer school days, additional required courses for graduation, no pass-no play rules, remedial and enrichment programs, high school graduation and grade-to-grade testing" (Airasian, 1987, p. 55).

Despite the changes in the focus on these reforms, the ultimate goal of education remains the same: To increase standards and improve the competence of people in the educational system. Different perceptions of the causes of an educational problem will produce various types of reform efforts. The prevalent opinion of the public during the past decade has been one of an educational system in which standards have abraded and competence diminished. This perception has not been absolutely accepted but one factor that has been accepted by Americans is the need for schools to improve by various means that are intended to raise standards. One means is the rise of the use of testing programs

to increase control over the process of education. Tests have adopted new and important roles.

> By the end of 1984, twenty-nine states had required students to take so-called competency tests at select points in the educational ladder. Seventeen states had passed and more had pending legislation that required high school students to demonstrate mastery on a state-mandated graduation test in order to receive a regular high school diploma. (Airasian, 1987, p. 55)

The competency test was utilized by other states in a miscellany of capacities, namely, teacher certification, grade-to-grade promotion, allocation of remedial funding to award bonuses because of test score improvement. These tests are fundamentally different form traditional tests because these tests are state mandated certification tests. The exit test centers on graduation. This test is uniform and has a predetermined set of rules. These tests are constructed by an agency outside the local school system. The graduation test is mandated to the school by an outside agency. The HSGT is standardized in content, administration and scoring across local school districts. The HSGT has preset passing scores. The HSGT is a determining factor in receiving a high school diploma.

High school graduation testing has affected many arenas of society, namely, teachers, students, curriculum and special groups, especially minorities. The effects of graduation on these sectors of people have not been as general as once anticipated.

In many states hundreds of students have not scored the minimum competency level to reveal mastery of concepts of high school objectives. These students have been denied a regular high school diploma that they would likely have received under the

prior graduation requirements (Airasian, 1987, p. 60). This result has had a substantial effect on the students. It is expected that the passing rate on the HSGT will increase during the first few test administrations.

> On the first administration of the graduation test in Florida in October 1977, 41,000 (36 percent) of the students failed to qualify for a diploma. By April 1983, the failure rate was less than 2 percent. (Airasian, 1987, p. 60)

The percentage of students passing to students failing the graduation test rises and falls. This oscillating range of percentages has been argued by proponents and opponents of graduation testing. The advocates of graduation testing argue that scores increase because the students are motivated, the standards are clear and the remediation is available when needed. The adversaries of graduation testing argue that scores go up because teachers focus a major portion of class time on teaching tested material and because the low scorers give up and leave school. Regression of first time failures might account for some portion of the increase in scores. Few good data exist to support either position (Airasian, 1987, p. 61). One conclusion can be that most students will pass the HSGT with little difficulty after a couple of administrations.

The graduation test is not designed to identify the upper-level student, but rather to identify the few students who are not "minimally competent." The graduation tests are truly assessments of competence, with select test items and a set passing score in order to provide the vast majority of students an opportunity to adequately reveal their competence level.

School districts are concerned about the students who do not meet the minimum competency level. Solutions have been devised at the state level to be utilized by all school districts. One solution is the requirement of remediation for students who fail any part of the graduation test. This has generally meant setting up special remedial courses for such pupils. Often the state department makes available specific curriculum materials intended to help pupils learn the material tested on the examination (Airasian, 1987, p. 63).

Students who have failed the graduation test may be required to devote an enormous amount of time learning material on the test. This devotion reduces the amount of time available for studying other areas of the curriculum. Sometimes, these students are separated from their classmates to receive this additional help, thereby limiting their academic choices.

For the vast majority of pupils and teachers, the graduation tests have little apparent effect on their school lives (Airasian, 1987, p. 66). The consequences of the graduation test are important in that high failure rates lead to the need for substantial remediation. High failure rates also generate pressure from parents and the community all in an effort to improve overall student performance on the graduation test. The test will provide symbolic credibility to the public which will represent the most lasting consequence of the tests. The extent to which the public adopts a box score mentality that perceives tests and increased test scores to be evidence of a solution to the declining standard's problem is the extent to which other, more helpful solutions will be abandoned or never undertaken (Airasian, 1987, p. 66).

Review of TAP and GHSGT Literature

The objectives of the tests are similar, after all math is math. The objectives include computation with integers, decimals, fractions and percents. The GHSGT contents include 18-22% number and computation, 21-25% data analysis, 34-42% measurement and geometry, and 15-19% algebra. The TAP test objectives include operations, equivalent forms/order, common applications, algebra, geometry and measurement, statistics/graphs/tables and basic math principles. Specifically, the algebra strand of the GHSGT "tests algebraic principles taught in algebra and other mathematics courses: evaluating and simplifying algebraic expressions, solving equations, and ratios and proportions (Georgia Department of Education, p. 3)." The algebra objective for the TAP test lists the use of algebraic language, including exponents, solving equations and inequalities on the number line. The objectives of the TAP and the GHSGT are comparable as well they should be from grade to grade. What a student learns or is introduced to in earlier grades should be expanded on for transfer to practical situations, away from the classroom setting. One reason for the GHSGT is to assess whether skills are possessed that are necessary for functioning in the real world.

Scoring of tests of this nature is computed similarly. Both tests offer a raw score. A passing score for the GHSGT is 500 and the scores range from 400 to 600. There is no pass/fail score for the TAP test, but grade equivalent scores are given which reveal whether the student is at, above, or below grade level. Specifically, the TAP test was administered during March of the student's ninth grade year, thus the student who is on track should have scored a grade equivalent at or above ninth grade seven months or 9.7.

CHAPTER III

Methods and Procedures

Introduction

The problem projected and explored in this study was centered around the premise that the scores on the mathematics portion of the TAP is a reliable predictor for the scores on the mathematics portion of the GHSGT. In other words, does a below grade level, 9.7, TAP score precede a failing score, below 500, on the GHSGT? If this premise is found to be true, then it is hopeful that this local high school can and will place more emphasis on placing students in programs of study to alleviate the chance of failure on the mathematics portion of the GHSGT. The hypothesis is not null because the belief of this study is that there will be a significant correlation between the math scores on the TAP test administered to the ninth grade class and math scores on the GHSGT administered to eleventh grade students at a local high school.

Description of Subjects

Population

The population of this study was 272 first time ninth grade students at a local high school. The 272 students were administered the TAP test during March, 1994. The same students were administered the GHSGT two years later during Spring, 1996. All students were similar in nature and background in that a student must take prescribed courses when seeking a certain diploma type. Testing conditions were equal in that both tests were administered in a homeroom setting.

Sample

The sample of this study was 182 (89 male and 93 female) of the 272 members of the population. The 93 female subjects racially divided into 46 black females, 45 white females, and 2 other females. The male subjects racially divided into 37 black males, 46 white males, and 6 other males. Some of the members of this sample received free lunch, while others were ineligible or opted not to receive free lunch. Based on this factor the socio-economic status of this sample ranged from lower-lower class to upper-upper class. The 90 subjects who were eliminated from the study were students who did not have a score on both the TAP and GHSGT for the specified times.

Instruments

The TAP has been traditionally administered to first time ninth grade students at a local high school as a tool for remediation. The reliability and validity coefficients were made available via the examiner's manual included in the packets of materials submitted to the school for testing. The principal, counselor, and registrar were consulted about the nature and the use of test results, TAP and GHSGT. The GHSGT was administered to all eleventh grade students as a mandate from the Georgia Department of Education. The reliability and validity coefficients for this test were secured for the Georgia Department of Education, Research, Evaluation and Testing Division.

Procedures

TAP was administered to all ninth grade students who entered a local high school in August, 1993. Every student was assigned to a homeroom at the beginning of the school year and the homeroom was the setting of the test administration. Homeroom teachers served as proctors of these tests and were briefed about test procedures by the

counselor who is responsible for testing. Emphasis is placed on having little or no interruptions during the test which is the reason students are tested in classrooms as opposed to the cafeteria which is located in a high traffic area.

The GHSGT is administered for the first time during Spring semester of the student's junior year. Again most students are administered the test by the homeroom teacher in a classroom setting. The classroom setting is conducive to diminishing the number of interruptions during the testing period. Just as the teachers are briefed by the testing counselor for the TAP, the same counselor briefs the teachers responsible for administering the GHSGT.

Both tests yield a number of different scores, but for the purpose of correlation the grade equivalent yielded by the TAP was used. The TAP was administered March, 1994; therefore, the student's school level translates to 9.7. The passing score for the GHSGT is 500 and this score was sufficient for correlation with the 9.7 TAP.

CHAPTER IV

Results and Discussion

Data Analysis

The researchers secured the TAP and GHSGT scores of the students at a local high school who entered in 1993 and were administered the GHSGT in 1996. The dates of these tests are mandated by the Testing Division of the Georgia Department of Education. The tests were scored and the test results were reported in two forms.

The counselor/testing coordinator of the local high school received a list of student scores on the TAP test arranged in descending chronological order. Each student also received a personalized copy of the scores for individual use. The GHSGT scores are reported in similar manner. The counselor/testing coordinator received a breakdown of scores by subject and the number of students who passed or failed in a certain area. This report contained a breakdown for the student to see which area of a particular subject was deficient.

The counselor/testing coordinator released a copy of TAP math scores for March, 1993 and GHSGT math scores for Spring, 1996 to the researchers for use in this study. The researchers then eliminated subjects who did not have a math score for each test. This process reduced the number of subjects from 272 to 182. The math scores of the remaining 182 subjects were input into the SPSS+ statistics program for analysis. A Correlational study of the math scores on the TAP and GHSGT for the sample was computed and these findings were used for interpreting the data.

Analysis of Findings

Two scores were entered for each student, first the TAP math score from 1994 in grade equivalent form and second, the GHSGT math score from two years later. The correlation yielded a significant p-value of .01, well below the necessary .05 which mirrors a significance between the two scores. See Appendix.

Discussion of Findings

The correlation of the two math scores, TAP and GHSGT, solidifies the hypothesis. The hypothesis was that there will be a significant correlation between the two scores and the analysis of the data supports the hypothesis for this high school.

CHAPTER V

SUMMARY AND CONCLUSIONS

The purpose of this study was to show that there is a significant correlation between math test scores of students in the ninth grade and math test scores of the same students in the eleventh grade. The data analysis supports the contention that the correlation is significant. Data was collected from one local high school in the Middle Georgia area for the study.

The researchers had only to approach the counselor in charge of testing to solicit the scores. Once the scores were in hand, it was necessary to peruse the students' names to cast out ones who did not have scores for both tests. Students excluded did not take both tests for any number of reasons. One reason was the student might have been a transfer student in or out of the school. Another reason might have been that the student who took the TAP as a ninth grade student failed a grade and was not in the eleventh grade at the time of the GHSGT administration.

While entering data, the researchers perceived that a pattern was developing, such as a high grade equivalent from the math TAP was a sure sign of a passing score for the math GHSGT or a low math TAP would surely equate with a failing math GHSGT score. Such was not the case, i.e. one grade equivalent 4.7 on the math TAP yielded a 557 on the GHSGT mathematics portion. With the human mind, the 4.7 score should have predicted an obvious failure on the GHSGT, therefore, the study was valid for the purpose of allowing the statistical analysis of the numbers. Why didn't the low TAP math score precede a failing math GHSGT score? To answer a question of this nature would dictate further study.

Specifically a score of 4.7 on the math TAP and later a GHSGT math score of 557 screams that something is wrong, but what? Did the student in question have a bad test day, did the student receive remediation within the two year period or unconscionably as it may seem, did the student receive illegal help? The 4.7, 557 score combination was not the only fluke of the study, there was a high-low combination, i.e. 13.6 and 497. What happened to produce the latter combination? Educators need to be aware of such flukes and be prepared to investigate the cause and diminish future occurrences.

The results of this study could be shared with other schools of similar make up in an effort to suggest what indications are likely. The sharing of these results would be informative to these schools and even reiterate the fact that a problem does exist with these students and remedies must be devised.

Recent headlines and newscasts have heralded the results, mostly unflattering, of the GHSGT, specifically the number of failures and the end result for some, not participating in graduation exercises. Not participating in graduation exercises is a high price, too high especially for those that have excelled in the classroom, but the excellence was not transferred to a passing score on the GHSGT.

Further studies can address the biases of the GHSGT, specifically why and if minorities score lower on the tests? A study of this nature should perhaps prompt revision of the test or maybe even elimination of the test as other states have.

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Appendices

DETAILED SKILL OBJECTIVES

TESTS OF ACHIEVEMENT AND PROFICIENCY

Mathematics

Level 15

OPERATIONS

Addition with integers
Addition with fractions
Subtraction with integers
Subtraction with fractions
Multiplication with integers
Division with integers
Division with fractions
Division with decimals
Percent less than 100%
Percent greater than 100%

EQUIVALENT FORMS/ORDER

Change fraction to percent
Arrange decimals by size

COMMON APPLICATIONS

Add & subtract with fractions
Division with fractions
Computing wages
Computing interest
Ratio & proportion
Using an inequality

ALGEBRA

Use of algebraic language
Algebraic language exponents
Solving an equation
Inequality number line

GEOMETRY AND MEASUREMENT

Metric measure: units
Fractions: inches & yards
Scale drawing: proportion
Recognizing a geometric figure
Areas of rectangle
Areas: square & rectangle
Width of rectangle
Circumference of a circle
Volume of a solid
Angle measurement
Similar triangles

STATISTICS/GRAPHS/TABLES

Understanding of mean
Calculating mean
Interpreting statistical graphs
Interpreting circle

BASIC MATH PRINCIPLES

Least common denominator
Sets: intersection & union
Closure of a set
Recognition of a pattern
Rounding of a pattern
Rounding a decimal
Numeral systems: bases
Numeration & powers of ten

SKILLS OBJECTIVES

GEORGIA HIGH SCHOOL GRADUATION TESTS

Mathematics

NUMBER AND COMPUTATION

This strand addresses numbers, equivalent forms of numbers, arithmetic properties and operations, and computing with integers, decimals, fractions, percents and proportions. Real-world applications in computing prices, change, discounts, sales tax, interest and best buy tested. Estimation and problem-solving techniques are also included.

DATA ANALYSIS

This stand includes use of exact and approximate number; probability; reading and interpreting graphs, charts and tables; and using statistical measures such as mean, median, mode and range.

MEASUREMENT AND GEOMETRY

This strand tests estimation and determination of measurements such as length, area, volume, weight, time and temperature. Similar and congruent figures, use of proportions to find missing sides of figures, and use of scale drawings are included. The coordinate plane is tested, as well as geometric properties and figures, determination of degrees in angles, and applications of the Pythagorean theorem.

ALGEBRA

This strand tests algebraic principles taught I algebra and other mathematics sources: evaluating and simplifying algebraic expressions, solving equations, and ratios and proportions.

July 1997

We contacted our newly hired principal, Dr. Gene Nisbet, and made a visit to the school to personally explain to him the nature of our research project. After our explanation of what our project would entail and need, TAP and GHSGT math test scores, we solicited his permission to use the necessary resources and information relevant to our project. Dr. Nisbet granted his permission during this same meeting and for that we are appreciative.

Correlations

Correlations

		GHSGT	TAP
Pearson Correlation	GHSGT	1.000	.834**
	TAP	.834**	1.000
Sig. (2-tailed)	GHSGT	.	.000
	TAP	.000	.
N	GHSGT	182	182
	TAP	182	182

**. Correlation is significant at the 0.01 level (2-tailed).

	tap	ghsgt
1	15.90	600.00
2	15.70	600.00
3	15.70	577.00
4	15.70	574.00
5	15.70	600.00
6	15.50	568.00
7	15.30	565.00
8	15.10	574.00
9	15.10	571.00
10	15.10	577.00
11	14.90	577.00
12	14.90	577.00
13	14.90	600.00
14	14.90	571.00
15	14.90	574.00
16	14.50	571.00
17	14.50	571.00
18	14.30	571.00
19	14.10	565.00
20	14.10	565.00
21	14.10	565.00
22	14.10	571.00
23	13.90	557.00
24	13.90	568.00
25	13.90	600.00
26	13.90	574.00
27	13.80	562.00
28	13.80	560.00
29	13.80	543.00
30	13.80	577.00

	tap	ghsgt
31	13.60	565.00
32	13.60	562.00
33	13.60	562.00
34	13.60	571.00
35	13.60	568.00
36	13.60	497.00
37	13.60	557.00
38	13.60	562.00
39	13.50	560.00
40	13.50	548.00
41	13.50	562.00
42	13.50	571.00
43	13.50	560.00
44	13.40	568.00
45	13.40	577.00
46	13.40	537.00
47	13.40	565.00
48	13.20	551.00
49	13.20	562.00
50	13.20	571.00
51	13.00	560.00
52	13.00	548.00
53	13.00	565.00
54	13.00	562.00
55	13.00	568.00
56	12.80	548.00
57	12.80	537.00
58	12.80	568.00
59	12.80	551.00
60	12.80	574.00

	tap	ghsgt
61	12.80	574.00
62	12.80	557.00
63	12.80	557.00
64	12.80	526.00
65	12.60	548.00
66	12.60	562.00
67	12.60	548.00
68	12.60	523.00
69	12.60	545.00
70	12.60	534.00
71	12.40	540.00
72	12.40	548.00
73	12.40	574.00
74	12.40	517.00
75	12.40	540.00
76	12.40	557.00
77	12.10	554.00
78	12.10	531.00
79	12.10	537.00
80	12.10	540.00
81	12.10	565.00
82	12.10	520.00
83	12.10	562.00
84	11.80	531.00
85	11.80	568.00
86	11.80	494.00
87	11.80	551.00
88	11.80	554.00
89	11.80	554.00
90	11.40	557.00

	tap	ghsgt
91	11.40	548.00
92	11.40	548.00
93	11.40	543.00
94	11.40	548.00
95	11.40	560.00
96	10.80	528.00
97	10.80	537.00
98	10.80	528.00
99	10.80	551.00
100	10.80	537.00
101	10.50	540.00
102	10.50	545.00
103	10.50	534.00
104	10.50	540.00
105	10.50	557.00
106	10.20	472.00
107	10.20	520.00
108	10.20	497.00
109	9.70	548.00
110	9.70	534.00
111	9.70	531.00
112	9.70	548.00
113	9.70	523.00
114	9.70	514.00
115	9.70	509.00
116	9.20	514.00
117	9.20	526.00
118	9.20	526.00
119	9.20	551.00
120	8.80	486.00

	tap	ghsgt
121	8.80	494.00
122	8.80	528.00
123	8.80	531.00
124	8.80	520.00
125	8.60	540.00
126	8.60	554.00
127	8.60	523.00
128	8.60	548.00
129	8.60	486.00
130	8.60	500.00
131	8.30	537.00
132	8.30	494.00
133	8.30	494.00
134	8.30	474.00
135	8.30	517.00
136	8.30	472.00
137	8.30	503.00
138	8.30	489.00
139	8.00	540.00
140	8.00	537.00
141	8.00	523.00
142	8.00	548.00
143	8.00	506.00
144	8.00	534.00
145	8.00	497.00
146	7.60	494.00
147	7.60	565.00
148	7.60	491.00
149	7.40	503.00
150	7.40	506.00

	tap	ghsgt
151	7.40	466.00
152	7.40	506.00
153	7.40	491.00
154	7.10	483.00
155	7.10	491.00
156	7.10	497.00
157	7.10	494.00
158	7.10	480.00
159	6.30	503.00
160	6.30	486.00
161	6.30	506.00
162	6.30	449.00
163	5.90	500.00
164	5.90	497.00
165	5.70	517.00
166	5.70	483.00
167	5.70	477.00
168	5.70	494.00
169	5.70	494.00
170	5.70	489.00
171	5.70	472.00
172	5.70	506.00
173	5.70	449.00
174	5.70	497.00
175	5.50	472.00
176	5.50	491.00
177	5.50	463.00
178	5.20	486.00
179	5.20	483.00
180	4.90	466.00

	tap	ghsgt
181	4.70	489.00
182	4.70	557.00

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