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A STUDY OF GENDER AND SUBJECT AREA ON STUDENT TEST SCORE PREDICTION

by
Slade Spencer

A Thesis

Submitted in partial fulfillment of the requirements of the Master of Science in Teaching Degree in the Graduate Division of Rowan University
June 1998

Approved by

Date Approved July 1, 1998

ABSTRACT

Slade Spencer. A STUDY OF GENDER AND SUBJECT AREA ON STUDENT TEST SCORE PREDICTION. 1998. Dr. Robinson -- Advisor. Submitted in partial fulfillment of the requirements of the Master of Science in Teaching Degree in the Graduate Division of Rowan University.

The goal of student self assessment in this study was to give the instructor feedback-- first hand knowledge of the level of understanding/comprehension the students have of the concepts in a given subject area. The purpose for test score predictions was to enable the classroom teacher to teach the areas of subject matter that were needed, not teach what has already been mastered as a skill.

Previous research has shown mixed results in the area of whether gender or subject area affects test score prediction. This provided support for the dual null hypotheses. There is not a significant relationship between test score prediction and gender in the fifth grade. There is not a significant relationship between subject matter content (including: spelling, mathematics, social studies, science, and language arts) and test score prediction for students in the fifth grade.

A fifth grade involving 49 total participants had their test score predictions recorded and then analyzed by a chi square statistical operation. Mathematics, spelling, language/grammar, and reading/vocabulary were subject areas that males could consistently predict their scores more correctly than females. The subject areas of science and social studies were not predicted more accurately by either gender.

ABSTRACT

Slade Spencer. A STUDY OF GENDER AND SUBJECT AREA ON STUDENT TEST SCORE PREDICTION. 1998. Dr. Robinson -- Advisor. Submitted in partial fulfillment of the requirements of the Master of Science in Teaching Degree in the Graduate Division of Rowan University.

This study researched the correlation between test score prediction accuracy and the areas of gender and subject content. Mathematics, spelling, language/grammar, and reading/vocabulary were subject areas that males could consistently predict their scores more correctly than females. The subject areas of science and social studies were not predicted more accurately by either gender.

ACKNOWLEDGEMENTS

The writer is indebted to the following people who assisted and were a key and invaluable asset to the completion of this thesis:

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Miss Rachel Segel, my fiancé, without her unwavering love and support both spiritual and financial, this study could have never been completed.

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Chapter I

Scope of the Study

Introduction

"An important goal in education is to help students regulate and control their own learning" (Barnett & Hixon, 1997, p. 170). One focus of this study is a component of self regulated learning. Does a student have the ability to accurately predict their level of performance on forthcoming tests? The area of study effects the accuracy of these scores. Previous research has stated that, more accurate predictions derive from mathematics test score prediction, and lower test score predictions can be found in reading (Peterson, Swing, Braverman, & Buss, 1982) and (Glenberg & Epstein, 1985).

It is during the middle years of childhood (about 6-12 years) that some of the most powerful and enduring self schemas, that make up a child's self concept, begin to take shape. The child's academic self concept is likely to be an important factor in their educational progress (Blatchford, 1992). Teaching students to give accurate self assessments will be well worth the effort involved. The information gained can be used for a variety of resolutions in classroom situations (Nelson-Le Gall, Kratzer, Jones & Decooke, 1990).

There is a strong relationship between the correlation of self test prediction and classroom achievement, however more research needs to be done to see if the self test prediction is the cause of good performance or if there are other variables effecting the outcome (Barnett & Hixon, 1997).

Purpose of the Study

In most educational environments accurate self assessment is especially beneficial when the student prepares for a test. To study effectively students must accurately appraise their knowledge of the material to be tested and then budget their time and resources to meet their goals (Barnett & Hixon, 1997). Most elementary school children do not think of the situation quite like that, but their actions will follow that procedure. Thus, having students give a teacher accurate feedback about the actual knowledge gained can lead to many positive reactions to the knowledge.

The teacher will gain insight into the sections of the lessons that are still not clear to the students, and may decide to reteach or give extensive review to the deficient areas (Blatchford, 1992). The students can gain the knowledge of their weak areas and concentrate their efforts to the abilities that are lacking. The simple act of self assessment, test prediction in this study, can reap rewards for both students and teachers, saving time and effort in both individuals (Nelson-Le Gall, Kratzer, Jones & Decooke, 1990). The purpose of this study included two parts. The first purpose was finding out if the students can actually do accurate self assessments. The second purpose of this study was, once accurate self assessment has been demonstrated, was identifying the location of the academically weak areas of subject matter for the students.

Statement of the Problem

What is the relationship between test score prediction accuracy and the areas of gender and subject content? Do girls predict better in certain subject areas than boys and vice-versa? Can the knowledge of the children's strengths and weaknesses help the

pupils to become better students and use their time wisely? Will the students understand the help they are getting regarding their study habits with the information provided to them though their test score prediction?

Hypothesis

The following dual null hypotheses were tested: There is not a significant relationship between test score prediction and gender in the fifth grade. There is not a significant relationship between subject matter content (including: spelling, mathematics, social studies, science, and language arts) and test score prediction for students in the fifth grade.

Limitations

The following elements may have effected the reliability and/or validity of this study:

The population was one of convenience, which limits the manner in which the results can be inferred to the total population. The participating elementary school was chosen without the control of the researcher. The cultural and socioeconomic makeup of the population is therefore not stratified, consequently all groups of the general population may not be represented. The size of the population involved in the study was limiting. The entire fifth grade class of the elementary school was involved and this translated into a total of 49 students. The small population made it difficult to infer the results of this study on the general population.

The data was gathered from two different classrooms. The tests given were the same for each of the 49 students. Only tests that were judged equal by the researcher and by the classroom teachers were used for both classrooms.

The students were aware that they participated in a research study so the halo effect could be present in the results. A planned abundance of scores have been generated, thus the frequency of test score prediction reduced the novelty of the event. The urge to write what they expect the researcher to examine was also reduced by the volume of completed test prediction sheets.

All limitations were taken into consideration. All efforts to correct and eliminate as many limitations as possible were attempted.

Definitions of Terms

The listed terms were used in this study in the following way:

Test Score Prediction. This term was used to indicate the grade that the students wrote down on their Test Score Prediction Sheet (A, B, C, D, or F). This was an indication of how confident the individual student feels about his/her knowledge of the specific subject area.

Test Score Prediction Sheet. This was the sheet of paper on which the students were asked to write four items. The items were their name, their gender, the subject the test would be on, and the test score prediction the student believes they will earn on the upcoming test (see appendix B).

Meta-cognitive judgments. For this research study this term was defined as test score prediction

Subject Content Area. This was the subject matter in a particular area of the curriculum. The following subject content areas were considered in this study:

Spelling. The tests were completed by having the student spelling correctly a list of 25 words. The list changed every week.

Mathematics. The tests were completed by having the students solve mathematical problems to their proper solution. Areas covered during this study were long division, addition and subtraction of fractions and mixed numbers, and introductory concepts of geometry (angle measurement, protractor use, knowledge of basic shapes, and how to calculate angles of these shapes). The actual work to solve the problem was to be shown and extensive word problems were included in the testing situations

Science. The tests were completed by having the students complete multiple choice questions for the first section of the test and short essay questions for the second part of the test. The first section of the test was usually sixty percent of the grade.

Social Studies. The students were evaluated by completing a multiple choice test prepared by the text publisher and a teacher prepared multiple choice test. The two tests were combined. Colonial and revolutionary times were covered in the testing period. No essays were involved for this testing.

Language Arts/Grammar. The students were evaluated by completing a multiple choice test in two general areas. The first being vocabulary from the novel that the students were reading. This test consisted of matching. The students had to match the word with the correct meaning for all the words for the week (usually 10-15 words). The other tested section was the grammar. The students were evaluated by completing a multiple choice test on the grammar subject taught during the test prediction time period. The area tested during the study period were pronouns, adjectives, and sequence words and descriptors.

Chapter II

Review of Related Literature

Introduction

The goal of student self assessment is to give the instructor feedback, first hand knowledge of the level of understanding/comprehension the students have of the concepts in a given subject area. The purpose for this is to enable the classroom teacher to teach the parts of subject areas that are needed, not teach what has already been mastered as a skill. Previous research has shown mixed results in the area of whether gender or subject area affects test score prediction. This provides support for the dual null hypotheses. There is not a significant relationship between test score prediction and gender in the fifth grade. There is not a significant relationship between subject matter content (including: spelling, mathematics, social studies, science, and language arts) and test score prediction for students in the fifth grade.

The research articles used in this review of literature were collected from various professional journals on subjects related to self assessment, elementary and secondary students test prediction, education and gender relationships, and physical and mental development of children. The researched information can be organized into four separate areas of research: gender and test score prediction, subject area and test score prediction, effects of test prediction, and general and topics of test prediction/self assessment.

Gender and Test Prediction

Numerous research studies have been done on the effects of gender and how it will effect learning and teaching. At the early age of seven boys have been proven to overestimate their abilities and girls at the same age do not. By the time age eleven comes around, the boys level of over estimation is significantly lower but still above the girls (Blatchford, 1992). Even though the boys have the self confidence for high test prediction, the girls with their earlier developmental stages, give the more correct and accurate views.

Boys more often than girls are oblivious to their past failures as they make predictions about future performance. Time after time, and lower actual score after lower actual score, the boys pressed on, not caring what their previous tests or test predictions were like. This was across all subjects as well (Pressley, Levin, Ghatala, & Ahmad, 1987).

Girls were more aware than boys that they were unlikely to be correct on difficult items/tests. Girls will make lower predictions following a failure. The accuracy of females' perceptions might actually be a disadvantage, in that their more accurate perceptions of item failures are also more pessimistic. These perceptions could reduce their motivation compared to boys (Pressley, Levin, Ghatala, & Ahmad, 1987). The self esteem of girls seems to come into play with this observation. The self esteem issue is also becoming a larger factor in all areas of the females' lives and school lives in particular (Kelly, 1978).

Gender is overall a poor predictor of individual performance. This is in relationship to test score prediction or everyday activities. It is difficult to separate the

two areas of gender and subject area when discussion past research, most go hand in hand and have complex relationships in a variety of ways (Wishnick, 1990).

Subject Area and Test Prediction

Males tend to predict test scores better than females in the areas of mathematics and science. This has been proven now and again for the last 50 years (Steinkamp and Maehr, 1984). However, research has shown that gender differences in motivational orientations towards science at the secondary and elementary levels cannot be used as a primary explanation for female gender having under representation in science professions or as a justification for their disappointing performance records in those fields (Steinkamp & Maehr, 1984).

Although many girls consider science appropriate for girls in general, they are less likely than boys to envision themselves in science related occupations (Butcher & Pont, 1968). The males predict test scores better and usually state a preference for the physical sciences and the females do the same in the biological sciences. For whatever reasons, girls tend to enroll in courses dealing with life processes, as a result, courses in those areas have come to revolve around the verbs propensities of girls and thus serve as a vehicle for girls' increasing interest. In addition, biology receives extensive treatment in elementary school, and girls may learn to like the subject before their classmates become aware of the stereotypic labels (Kelly, 1978).

As a whole the mathematics and science fields tend to give more accurate test score predictions than the other subjects. The answers are either known or not known. A

person cannot talk or write a way out of a tough question in these subject areas, due to the fact that a majority of the questions have just one answer (Barnett & Hixon, 1997).

Reading/langauge are the subject areas that the girls excel and the boys lag far behind in test score prediction. Girls and their bodies have much to do with this. The average female is about two years physically older than males when they are about 12 years old. This means their brains and thought processes are advanced as well. This give females an advantage in the language arts. While the males have the number sense and spatial ability forming earlier, the females have reasoning, understanding, and logical conclusions helping them understand and answer the question in the language arts better than the males (Steinkamp & Maehr, 1984).

Another area that must be considered in the subject area section is the affect of the teacher on the student and the subject. All teachers have their better subjects and worst subjects, this type of difference in teaching style and knowledge of the subject matter will have an effect on the pupils. If a teacher spends an hour and a half on reading and only 30 minutes on mathematics, then of course the students will not be as proficient in mathematics as they are in reading/language (Steinkamp & Maehr, 1984).

Teachers have reported that girls like to be directed and provided with continual feedback on their performances, whereas boys are more apt to thrive in unstructured situations offered in high school and similar situations. Girls, but not boys benefit from verbal information in discovery situations. These propensities may place girls at a disadvantage in junior high where discovery learning and independent learning styles possibly play major roles. It may be noted that in many school systems, the first exposure

to male teachers occurs in junior high science classes and this may have an effect (Ogunyemi, 1972).

Effects of Test Prediction

The fact that the children make an educated guess about how they are prepared for a test will lend itself to various problems with children. The process of comparison about one child's guess to another child or the rest of the class can both positively and negatively effect the children's self worth (Blatchford, 1992). In most laboratory studies, researchers have found positive correlations among meta-cognitive judgments (test prediction), studying, and achievement (Waters, 1982). Following this theory, accurate self assessment should lead students to self questioning or to allocation of study time to the unknown information. Testing has shown that this will only occur in the higher grade levels (5th -7th) (DuFrensne & Kosasugawa, 1989).

Students in high and low achieving sections tend to have a better understanding of their knowledge and limitations. This is due to the constant feed back of their abilities, it is the medium level children that will benefit the most from self test prediction (Stipek, 1981). The children who do not receive constant updating of their progress will have a hard time understanding where they fit in the learning environment, they need to base/evaluate themselves on others achievements and goals.

It has been mentioned the effects of making incorrect test score predictions. The males have no effect and the females self esteem will decrease if she misses her prediction on the low side (Pressley, Levin, Ghatala, &Ahmad, 1987). Related to this are motivational factors. The teacher/researcher will play a part in this. Is a test a fun

learning experience where anything goes and the student doesn't have to worry how hard the test is because there will always be a fun way to do the answers, or make ups are allowed, or just having a relaxed atmosphere. This should result in more accurate test score predictions (Kelly, 1978).

The teacher who warns the students all week long that the hardest test in their life is coming this Friday and that they as students better study like there is no tomorrow, will not bring a happy or carefree attitude to the test. The test prediction score will be lower because in essence the instructor has been telling the students how near impossible it is to receive a good grade on the test, so a bad attitude breeds another (Steinkamp & Maehr, 1984).

General Topics of Test Prediction

This section is labeled general for a purpose. As mentioned, the research in this area of test prediction contains conflicting reports. This is the main reason for the dual null hypotheses used for this study. One report would state that score prediction for six grade girls was high in mathematics while another study would claim that older elementary school girls test prediction in math and science was low compared with boys of the same age. Student test score predictions are typically more accurate in science and mathematics than in other domains because of the types of tests used (frequently multiple choice) and the subject matter. The subject is answered right or wrong, there are a minimal amount of answers that could be open for debate, unlike reading comprehension, or social concepts. These areas the answers might be open for interpretation and/or discussion (Falchikov & Boud, 1989).

The notion that test prediction has any value is an extensive debate. The research is mixed in its results. The only exception being that the younger the students are the least effective predictors and cannot understand that the process will allow themselves to help their own study habits and related skills. Some of the other research shows that only known high achieving students will make correct test predictions and learn the value of the procedure (Leal, 1987). Other will argue that the known lower achieving students will benefit more from the test prediction due to the fact that their errors/weak spots are now exposed and they can study what needs to be studied (Barnett & Hixon, 1997).

A final view seen in the literature research is one that the test prediction will help the teacher gain an equal or greater amount of useful information than the students. The instructor will gain valuable insight into what teaching methods are effective and the ones that are not effective. The material that the students understand and need help with will be exposed. What teacher wouldn't want that information about their class? (Barnett & Hixon, 1997; Blatchford, 1992).

Chapter III

Procedure

Introduction

The goal of student self assessment is to give the instructor feedback-- first hand knowledge of the level of understanding/comprehension the students have of the concepts in a given subject area. The purpose was to enable the classroom teacher to teach the parts of subject areas that are needed, not to teach what has already been mastered as a skill. Previous research has shown mixed results in determining whether gender or subject area affects test score prediction. This reinforced the dual null hypotheses: There is not a significant relationship between test score prediction and gender in the fifth grade. There is not a significant relationship between subject matter content (including: spelling, mathematics, social studies, science, and language arts) and test score prediction for students in the fifth grade.

Subjects

The sample for this study was the two fifth grade classes at an elementary school located in southern, New Jersey. A total of 49 students participated in this research. The school was located in a predominately white, Anglo-Saxon, Protestant community and the students were a reflection of this homogeneous nature. This was documented by information from the United States Census (see appendix A). The classroom setting showed that there were no African-Americans among the students. One student did have

a mixed heritage of African-American and Caucasian. The class also contained no persons of the Jewish faith.

Instrument

The researcher handed out the test score prediction sheets before each test (see appendix B). The test score prediction sheet asked the student for the following: Their name, their gender, the subject area of the test about to be given, and the test score prediction the student believed they would earn on the test about to be given. The grade levels for their choice of test score prediction were: A, B, C, D, and F. There was not a plus, "+" or minus "-" in these grades.

Procedure

Before each test the researcher passed out a copy of the test score prediction sheet to every student taking the test.. The students wrote down their names, gender, and subject area on which they were about to be tested on, and the grade they believed they would earn on the upcoming test. The researcher then collected all the test score prediction sheets. Once the actual test scores were obtained by the researcher. The researcher wrote down the actual grade the child received on the test onto the test score prediction sheet.

The test score prediction sheets were then placed into a central book for safe keeping until the end of the research. At the end of the study the total amount of test score prediction sheets were then sorted by gender and sorted again by subject area. The

total amount of students who predicted correctly for that gender and subject were recorded.

This was done for all the subjects for both genders. An example would be: If there were 300 total scores for spelling, females accounted for 160 of the test prediction scores, while 140 males test predictions scored were counted. Of the 140 males only 52 of them predicted correctly, thus 88 predicted incorrectly. Thirty-seven percent of the boys predicted their score accurately. The females, however, predicted correctly 98 times out of 160. This is sixty-one percent of the females predicted their test score correctly. Once the numbers of correct predictions for each sex and subject area were recorded, the researcher performed statistical operations to see if the numbers obtained achieved statistical significance and if the dual null hypotheses were accepted.

Experimental design

The statistical treatment for this study was a chi square nonparametric test of significance. After all the data was collected, it was processed through the chi square design and frequencies contained in different categories were charted and noted. The results disclosed a relationship between gender and the area of test score prediction and the subject area, or lack there of. The dual null hypotheses were used for the distribution in the chi square calculations. This means there were to be equal numbers of males and females correctly predicting their scores.

Chapter IV

Analysis of Findings

Introduction

The goal of student self assessment was to give the instructor feedback-- first hand knowledge of the level of understanding/comprehension the students have of the concepts in a given subject area. The purpose was to enable the classroom teacher to teach the parts of subject areas that are needed, not to teach what has already been mastered as a skill. Previous research has shown mixed results in determining whether gender or subject area affects test score prediction. This reinforced the dual null hypotheses: There is not a significant relationship between test score prediction and gender in the fifth grade. There is not a significant relationship between subject matter content (including: spelling, mathematics, social studies, science, and language arts) and test score prediction for students in the fifth grade.

Analysis of Spelling Test Score Predictions

The first subject area that was analyzed was spelling. The spelling test was a test that asked the students to spell 25 words that they studied during the week. The results of the test score prediction were as follows: From a total of 361 total responses, 164 were males and 197 were female. Of the 164 male responses, 119 of the males predicted their score correctly and 45 did not predict correctly. The number of females that predicted their test score correctly was 112, while 85 did not predict correctly.

That meant 73% of the males and 57% of the females predicted their test scores correctly in the subject area of spelling. Conversely, 27% of the males and 43% of the females predicted incorrectly their test scores. The statistical treatment of chi square was applied and the chi square value calculated turns out to be 9.583. This value was significant to 0.01. Thus, the correlation between spelling and gender on test score prediction was significant. The dual null hypotheses were not accepted by this statement. There is a correlation to the areas of gender and the subject area of spelling on test score prediction (see tables 1 and 2). The table and calculations for the chi square value are located in table 3.

table 1
Bar Graph of Raw Data for Spelling Test Score Prediction

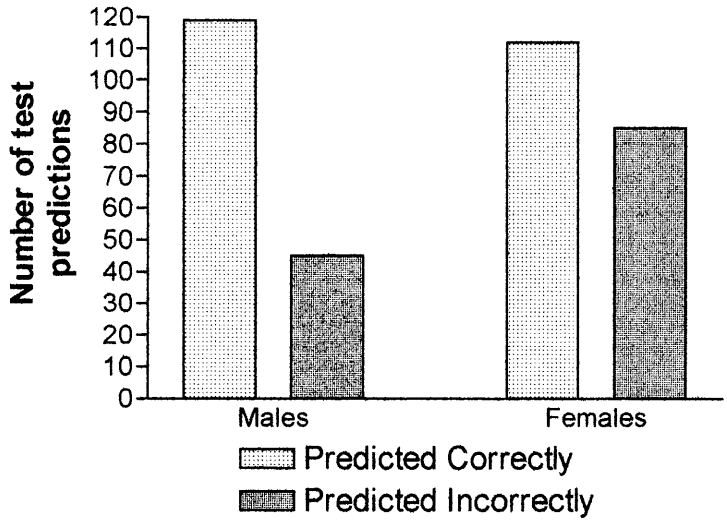

table 2
Bar Graph of Raw Data Percentages for Spelling Test Score Prediction

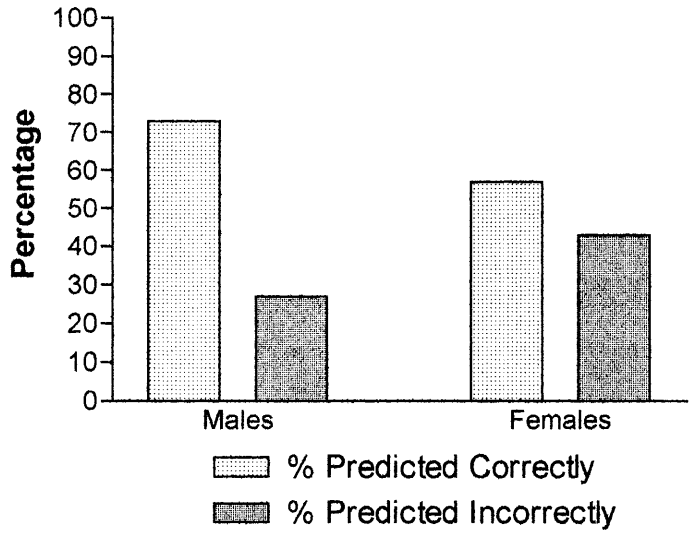

table 3
Chi Square Chart and Calculations for Spelling Test Score Predictions

	Males	Females	Total
Predicted Correctly	119	112	231
Predicted Incorrectly	45	85	130
Total	164	197	361

Degrees of freedom (df) = (rows - 1) x (columns - 1)
df = (2-1) x (2-1) = 1

Calculating expected frequencies for each cell ...

Processing row 1, column 1 ...
Observed value (O) = 119
Expected value (E) = (row total x column total) / grand total

E = (231 x 164) / 361 = 104.941828254848
Chi-square = (O - E)squared / E
Chi-square = ((119 - 104.941828254848) **2) / 104.941828254848
Chi-square = 1.88325471456679
Total chi-square now = 1.88325471456679

Processing row 1, column 2 ...
Observed value (O) = 112
Expected value (E) = (row total x column total) / grand total
E = (231 x 197) / 361 = 126.058171745152
Chi-square = (O - E)squared / E
Chi-square = ((112 - 126.058171745152) **2) / 126.058171745152
Chi-square = 1.56778565070535
Total chi-square now = 3.45104036527213

Processing row 2, column 1 ...
Observed value (O) = 45
Expected value (E) = (row total x column total) / grand total
E = (130 x 164) / 361 = 59.0581717451524
Chi-square = (O - E)squared / E
Chi-square = ((45 - 59.0581717451524) **2) / 59.0581717451524
Chi-square = 3.34639876203791
Total chi-square now = 6.79743912731004

Processing row 2, column 2 ...
Observed value (O) = 85
Expected value (E) = (row total x column total) / grand total
E = (130 x 197) / 361 = 70.9418282548476
Chi-square = (O - E)squared / E
Chi-square = ((85 - 70.9418282548476) **2) / 70.9418282548476
Chi-square = 2.78583450240719
Total chi-square now = 9.58327362971723

Calculating probability (P) ...
Looking up critical values for chi at df = 1:
Sig levels: 0.20 0.10 0.05 0.025 0.01 0.001
Crit vals: 1.64 2.71 3.84 5.02 6.64 10.83
Sig. 0.20: chi is greater than or equal to 1.64
Sig. 0.10: chi is greater than or equal to 2.71
Sig. 0.05: chi is greater than or equal to 3.84
Sig. 0.025: chi is greater than or equal to 5.02
Sig. 0.01: chi is greater than or equal to 6.64

Degrees of freedom: 1
Chi-square = 9.58327362971723

p is less than or equal to 0.01.
The distribution is significant

Analysis of Reading/Vocabulary Test Score Prediction

The next subject area that was analyzed was reading/vocabulary. The reading/ vocabulary test was a test in which the students were asked to match definitions to words they studied during the week. The results of the test score prediction are as follows: From a total of 263 total responses, 121 were males and 142 were female. Of the 121 male responses, 81 of the males predicted their score correctly and 40 did not predict correctly. The number of females that predicted their test score correctly was 62, while 80 did not predict correctly.

That meant 67% of the males and 44% of the females predicted their test scores correctly in the subject area of reading/vocabulary. Conversely, 33% of the males and 56% of the females incorrectly predicted their test scores. The statistical treatment of chi square was applied and the chi square value calculated turned out to be 14.272. This value was significant to 0.001. Thus, the correlation between reading/vocabulary and gender on test score prediction was significant. The dual null hypotheses were not accepted by this statement. There was a correlation to the areas of gender and the subject area of reading/vocabulary on test score prediction (see tables 4 and 5). The table and calculations for the chi square value are located in table 6.

table 4
Bar Graph of Raw Data for Reading/Vocabulary Test Score Prediction

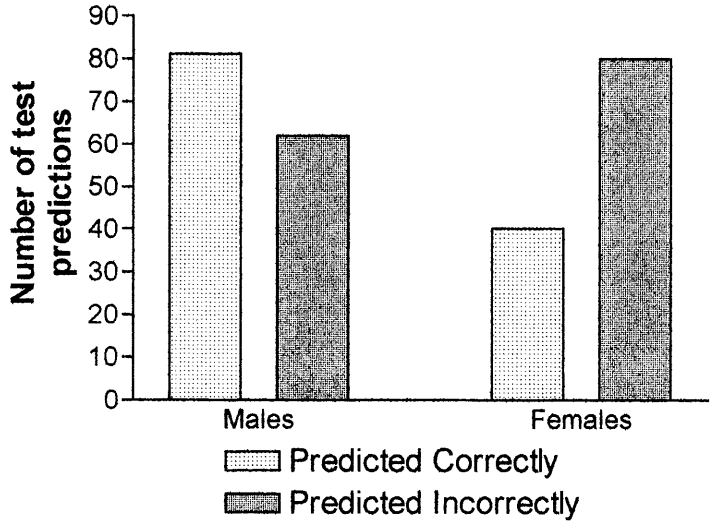

table 5
Bar Graph of Raw Data Percentages for Reading/Vocabulary Test Score Prediction

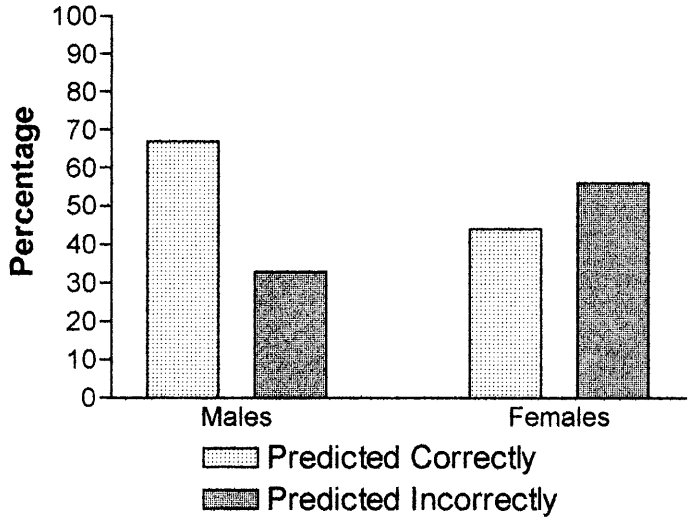

table 6
Chi Square Chart and Calculations for Reading/Vocabulary Test Score Predictions

	Males	Female	Total
Predicted Correctly	81	62	143
Predicted Incorrectly	40	80	120
Total	121	142	263

Degrees of freedom (df) = (rows - 1) x (columns - 1)
df = (2-1) x (2-1) = 1

Calculating expected frequencies for each cell ...

Processing row 1, column 1 ...
Observed value (O) = 81
Expected value (E) = (row total x column total) / grand total
E = (143 x 121) / 263 = 65.7908745247148
Chi-square = (O - E)squared / E
Chi-square = ((81 - 65.7908745247148) **2) / 65.7908745247148
Chi-square = 3.51595110103108
Total chi-square now = 3.51595110103108

Processing row 1, column 2 ...
Observed value (O) = 62
Expected value (E) = (row total x column total) / grand total
E = (143 x 142) / 263 = 77.2091254752852
Chi-square = (O - E)squared / E
Chi-square = ((62 - 77.2091254752852) **2) / 77.2091254752852
Chi-square = 2.99598650158282
Total chi-square now = 6.5119376026139

Processing row 2, column 1 ...
Observed value (O) = 40
Expected value (E) = (row total x column total) / grand total
E = (120 x 121) / 263 = 55.2091254752852
Chi-square = (O - E)squared / E
Chi-square = ((40 - 55.2091254752852) **2) / 55.2091254752852
Chi-square = 4.1898417287287
Total chi-square now = 10.7017793313426

Processing row 2, column 2 ...
Observed value (O) = 80
Expected value (E) = (row total x column total) / grand total
E = (120 x 142) / 263 = 64.7908745247148
Chi-square = (O - E)squared / E
Chi-square = ((80 - 64.7908745247148) **2) / 64.7908745247148
Chi-square = 3.57021724771953
Total chi-square now = 14.2719965790621

Calculating probability (P) ...
Looking up critical values for chi at df = 1:
Sig levels: 0.20 0.10 0.05 0.025 0.01 0.001
Crit vals: 1.64 2.71 3.84 5.02 6.64 10.83

Sig. 0.20: chi is greater than or equal to 1.64
Sig. 0.10: chi is greater than or equal to 2.71
Sig. 0.05: chi is greater than or equal to 3.84
Sig. 0.025: chi is greater than or equal to 5.02
Sig. 0.01: chi is greater than or equal to 6.64
Sig. 0.001: chi is greater than or equal to 10.83

Degrees of freedom: 1
Chi-square = 14.2719965790621
p is less than or equal to 0.001.
The distribution is significant.

Analysis of Language/Grammar Test Score Predictions

The next subject area that was analyzed was language/grammar. The language/grammar test was a test in which the students were asked about nouns, pronouns, adverbs, and the like. The results of the test score prediction were as follows: From a total of 110 total responses, 47 were males and 63 were female. Of the 47 male responses, 25 of the males predicted their score correctly and 22 did not predict correctly. The number of females that predicted their test score correctly was 20, while 43 did not predict their language/grammar test score correctly.

That meant 53% of the males and 32% of the females predicted their test scores correctly in the subject area of language/grammar. Conversely, 47% of the males and 68% of the females incorrectly predicted their test scores. The statistical treatment of chi square was applied and the chi square value calculated turned out to be 5.121. This value was significant to 0.025. Thus, the correlation between language/grammar and gender on test score prediction was significant. The dual null hypotheses were not accepted by this statement. There was a correlation to the areas of gender and the subject area of language/grammar on test score prediction (see tables 7 and 8). The table and calculations for the chi square value are located in table 9.

table 7

Bar Graph of Raw Data for Language/Grammar Test Score Prediction

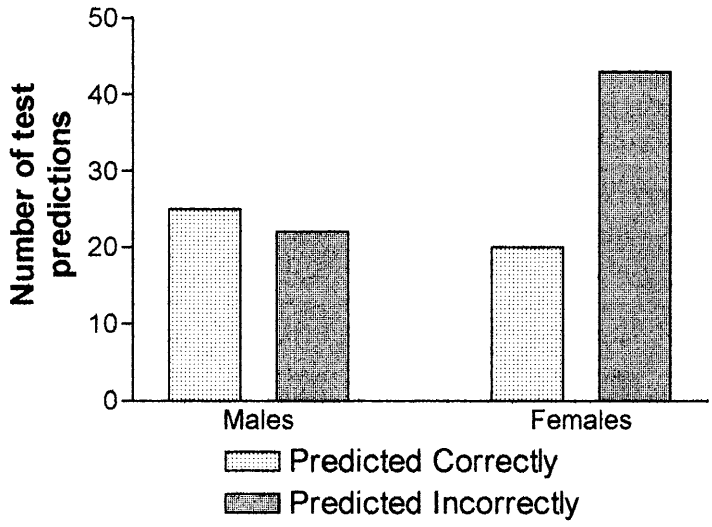

table 8
Bar Graph of Raw Data Percentages for Language/Grammar Test Score Prediction

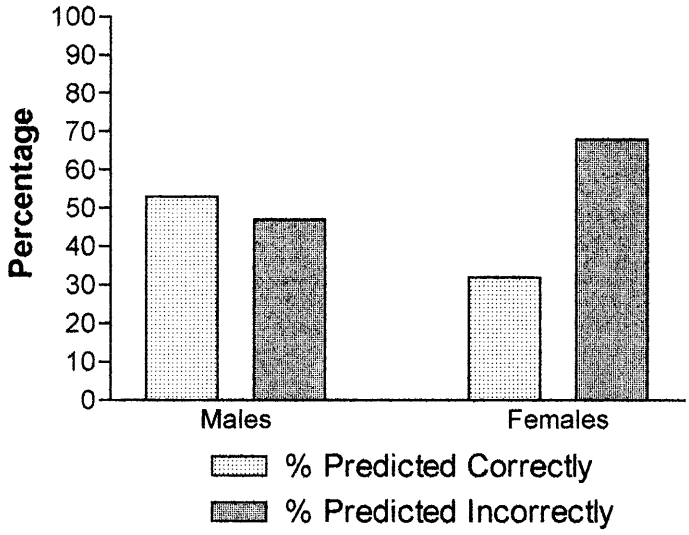

table 9
Chi Square Chart and Calculations for Language/Grammar Test Score Predictions

	Males	Females	Total
Predicted Correctly	25	20	45
Predicted Incorrectly	22	43	65
Total	47	63	110

Degrees of freedom (df) = (rows - 1) x (columns - 1)
df = (2-1) x (2-1) = 1

Calculating expected frequencies for each cell ...

Processing row 1, column 1 ...
Observed value (O) = 25
Expected value (E) = (row total x column total) / grand total
E = (45 x 47) / 110 = 19.2272727272727
Chi-square = (O - E)squared / E
Chi-square = ((25 - 19.2272727272727) **2) / 19.2272727272727
Chi-square = 1.73318289275736
Total chi-square now = 1.73318289275736

Processing row 1, column 2 ...
Observed value (O) = 20
Expected value (E) = (row total x column total) / grand total
E = (45 x 63) / 110 = 25.7727272727273
Chi-square = (O - E)squared / E
Chi-square = ((20 - 25.7727272727273) **2) / 25.7727272727273
Chi-square = 1.29300945967613
Total chi-square now = 3.02619235243349

Processing row 2, column 1 ...
Observed value (O) = 22
Expected value (E) = (row total x column total) / grand total
E = (65 x 47) / 110 = 27.7727272727273
Chi-square = (O - E)squared / E
Chi-square = ((22 - 27.7727272727273) **2) / 27.7727272727273
Chi-square = 1.19989584883202
Total chi-square now = 4.22608820126551

Processing row 2, column 2 ...
Observed value (O) = 43
Expected value (E) = (row total x column total) / grand total
E = (65 x 63) / 110 = 37.2272727272727
Chi-square = (O - E)squared / E
Chi-square = ((43 - 37.2272727272727) **2) / 37.2272727272727
Chi-square = 0.895160395160395
Total chi-square now = 5.1212485964259

Calculating probability (P) ...
Looking up critical values for chi at df = 1:
Sig levels: 0.20 0.10 0.05 0.025 0.01 0.001
Crit vals: 1.64 2.71 3.84 5.02 6.64 10.83
Sig. 0.20: chi is greater than or equal to 1.64
Sig. 0.10: chi is greater than or equal to 2.71
Sig. 0.05: chi is greater than or equal to 3.84

Sig. 0.025: chi is greater than or equal to 5.02

Degrees of freedom: 1
Chi-square = 5.1212485964259
p is less than or equal to 0.025.
The distribution is significant.

Analysis of Mathematics Test Score Predictions

The next subject area that was analyzed was mathematics. The mathematics test was a test in which the students were asked to solve mathematical problems. The results of the test score prediction were as follows: From a total of 117 total responses, 52 were males and 65 were female. Of the 52 male responses, 27 of the males predicted their score correctly and 25 did not predict correctly. The number of females that predicted their test score correctly was 18, while 47 did not predict their mathematics test score correctly.

That meant 52% of the males and 28% of the females predicted their test scores correctly in the subject area of mathematics. Conversely, 48% of the males and 72% of the females incorrectly predicted their test scores. The statistical treatment of chi square was applied and the chi square value calculated turned out to be 7.166. This value was significant to 0.01. Thus, the correlation between mathematics and gender on test score prediction was significant. The dual null hypotheses were not accepted by this statement. There was a correlation to the areas of gender and the subject area of mathematics on test score prediction (see tables 10 and 11). The table and calculations for the chi square value are located in table 12.

table 10
Bar Graph of Raw Data for Mathematics Test Score Prediction

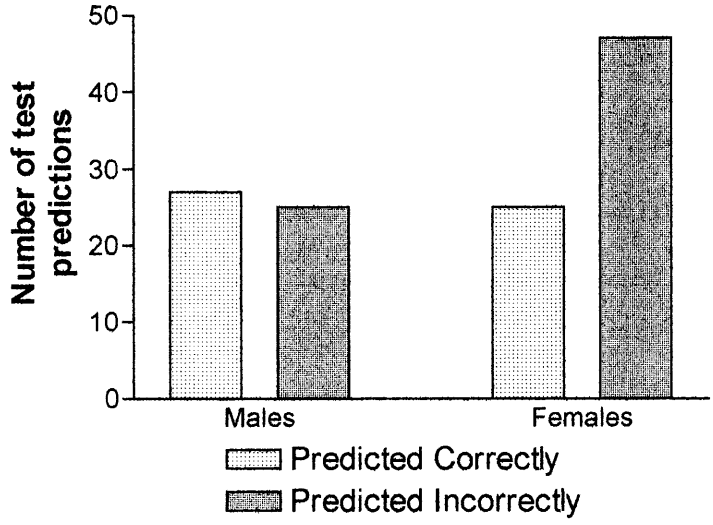

table 11
Bar Graph of Raw Data Percentages for Mathematics Test Score Prediction

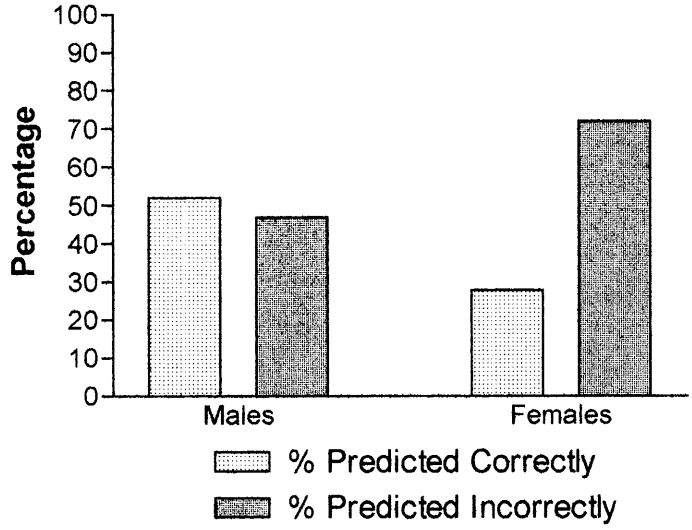

table 12
Chi Square Chart and Calculations for Mathematics Test Score Predictions

	Males	Females	Total
Predicted Correctly	27	18	45
Predicted Incorrectly	25	47	72
Total	52	65	117

Degrees of freedom (df) = (rows - 1) x (columns - 1)
df = (2-1) x (2-1) = 1

Calculating expected frequencies for each cell ...

Processing row 1, column 1 ...
Observed value (O) = 27
Expected value (E) = (row total x column total) / grand total
E = (45 x 52) / 117 = 20
Chi-square = (O - E)squared / E
Chi-square = ((27 - 20) **2) / 20
Chi-square = 2.45
Total chi-square now = 2.45

Processing row 1, column 2 ...
Observed value (O) = 18
Expected value (E) = (row total x column total) / grand total
E = (45 x 65) / 117 = 25
Chi-square = (O - E)squared / E
Chi-square = ((18 - 25) **2) / 25
Chi-square = 1.96
Total chi-square now = 4.41

Processing row 2, column 1 ...
Observed value (O) = 25
Expected value (E) = (row total x column total) / grand total
E = (72 x 52) / 117 = 32
Chi-square = (O - E)squared / E
Chi-square = ((25 - 32) **2) / 32
Chi-square = 1.53125
Total chi-square now = 5.94125

Processing row 2, column 2 ...
Observed value (O) = 47
Expected value (E) = (row total x column total) / grand total
E = (72 x 65) / 117 = 40
Chi-square = (O - E)squared / E
Chi-square = ((47 - 40) **2) / 40
Chi-square = 1.225
Total chi-square now = 7.16625

Calculating probability (P) ...
Looking up critical values for chi at df = 1:
Sig levels: 0.20 0.10 0.05 0.025 0.01 0.001
Crit vals: 1.64 2.71 3.84 5.02 6.64 10.83
Sig. 0.20: chi is greater than or equal to 1.64
Sig. 0.10: chi is greater than or equal to 2.71
Sig. 0.05: chi is greater than or equal to 3.84
Sig. 0.025: chi is greater than or equal to 5.02
Sig. 0.01: chi is greater than or equal to 6.64

Degrees of freedom: 1
Chi-square = 7.16625
p is less than or equal to 0.01.
The distribution is significant.

Analysis of Social Studies Test Score Prediction

The next subject area that was analyzed was social studies. The social studies test was a test in which the students were asked to recall various bits of information they were suppose to learn during pervious couple of weeks. The results of the test score predictions were as follows: From a total of 69 total responses, 32 were males and 37 were female. Of the 32 male responses, 14 of the males predicted their score correctly and 18 did not predict correctly. The number of females that predicted their test score correctly was 9, while 28 did not predict their social studies test score correctly.

That meant 44% of the males and 24% of the females predicted their test scores correctly in the subject area of social studies. Conversely, 56% of the males and 76% of the females incorrectly predicted their test scores. The statistical treatment of chi square was applied and the chi square value calculated turned out to be 2.914. This value was not significant to 0.1. Thus, the correlation between social studies and gender on test score prediction was not significant. The dual null hypotheses were accepted by this statement. There was no correlation to the areas of gender and the subject area of social studies on test score prediction (see tables 13 and 14). The table and calculations for the chi square value are located in table 15.

table 13

Bar Graph of Raw Data for Social Studies Test Score Prediction

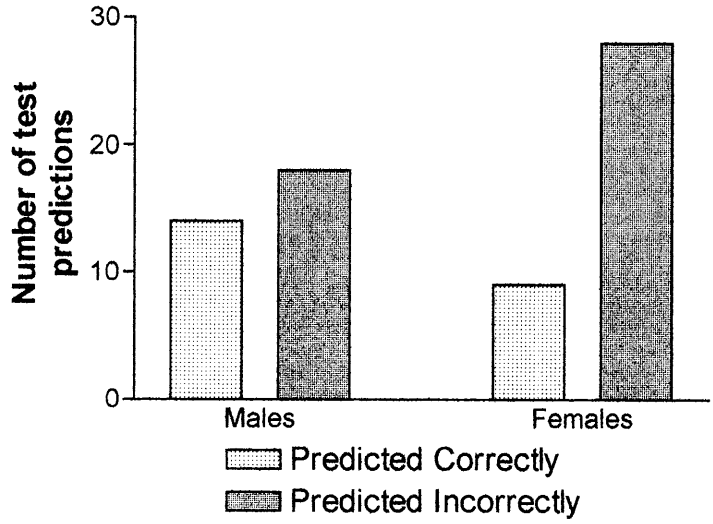

table 14
Bar Graph of Raw Data Percentages for Social Studies Test Score Prediction

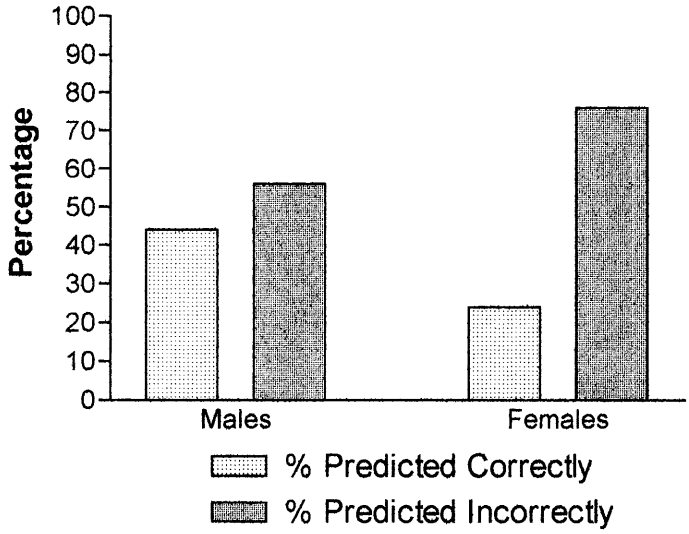

table 15
Chi Square Chart and Calculations for Social Studies Test Score Predictions

	Males	Females	Total
Predicted Correctly	14	9	23
Predicted Incorrectly	18	28	46
Total	32	37	69

Degrees of freedom (df) = (rows - 1) x (columns - 1)
df = (2-1) x (2-1) = 1
Calculating expected frequencies for each cell ...
Processing row 1, column 1 ...
Observed value (O) = 14
Expected value (E) = (row total x column total) / grand total
E = (23 x 32) / 69 = 10.6666666666667

Chi-square = (O - E)squared / E
Chi-square = ((14 - 10.6666666666667) **2) / 10.6666666666667
Chi-square = 1.04166666666667
Total chi-square now = 1.04166666666667

Processing row 1, column 2 ...
Observed value (O) = 9
Expected value (E) = (row total x column total) / grand total
E = (23 x 37) / 69 = 12.3333333333333
Chi-square = (O - E)squared / E
Chi-square = ((9 - 12.3333333333333) **2) / 12.3333333333333
Chi-square = 0.900900900900901
Total chi-square now = 1.94256756756757

Processing row 2, column 1 ...
Observed value (O) = 18
Expected value (E) = (row total x column total) / grand total
E = (46 x 32) / 69 = 21.3333333333333
Chi-square = (O - E)squared / E
Chi-square = ((18 - 21.3333333333333) **2) / 21.3333333333333
Chi-square = 0.520833333333333
Total chi-square now = 2.4634009009009

Processing row 2, column 2 ...
Observed value (O) = 28
Expected value (E) = (row total x column total) / grand total
E = (46 x 37) / 69 = 24.6666666666667
Chi-square = (O - E)squared / E
Chi-square = ((28 - 24.6666666666667) **2) / 24.6666666666667
Chi-square = 0.45045045045045
Total chi-square now = 2.91385135135135
Calculating probability (P) ...
Looking up critical values for chi at df = 1:
Sig levels: 0.20 0.10 0.05 0.025 0.01 0.001
Crit vals: 1.64 2.71 3.84 5.02 6.64 10.83
Sig. 0.20: chi is greater than or equal to 1.64
Sig. 0.10: chi is greater than or equal to 2.71
Degrees of freedom: 1

Chi-square = 2.91385135135135
For significance at the .05 level, chi-square should be greater than or equal to 3.84.
The distribution is not significant.
p is less than or equal to 0.10.

Analysis of Science Test Score Predictions

The last subject area that was analyzed was science. The science test was a test in which the students were asked to recall various information that they were suppose to learn during pervious two/three week period. The results of the test score predictions were as follows: From a total of 113 total responses, 52 were males and 61 were female. Of the 52 male responses, 27 of the males predicted their score correctly and 25 did not predict correctly. The number of females that predicted their test score correctly was 22, while 39 did not predict their science test score correctly.

That meant 52% of the males and 36% of the females predicted their test scores correctly in the subject area of science. Conversely, 48% of the males and 64% of the females incorrectly predicted their test scores. The statistical treatment of chi square was applied and the chi square value calculated turned out to be 2.874. This value was not significant to 0.1. Thus the correlation between science and gender on test score prediction was not significant. The dual null hypotheses were accepted by this statement. There is no correlation to the areas of gender and the subject area of science on test score prediction (see tables 16 and 17). The table and calculations for the chi square value are located in table 18.

table 16
Bar Graph of Raw Data for Science Test Score Prediction

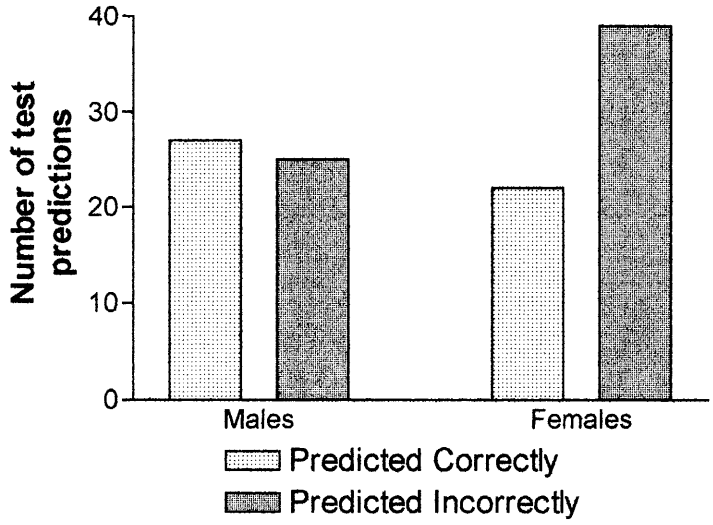

table 17
Bar Graph of Raw Data Percentages for Science Test Score Prediction

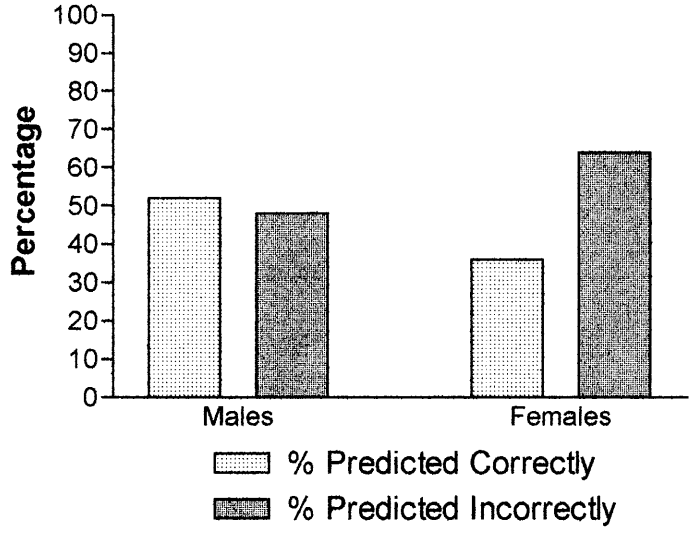

table 18
Chi Square Chart and Calculations for Science Test Score Predictions

	Males	Females	Total
Predicted Correctly	27	22	49
Predicted Incorrectly	25	39	64
Total	52	61	113

Degrees of freedom (df) = (rows - 1) x (columns - 1)
df = (2-1) x (2-1) = 1

Calculating expected frequencies for each cell ...

Processing row 1, column 1 ...
Observed value (O) = 27
Expected value (E) = (row total x column total) / grand total
E = (49 x 52) / 113 = 22.5486725663717
Chi-square = (O - E)squared / E
Chi-square = ((27 - 22.5486725663717) **2) / 22.5486725663717
Chi-square = 0.87873536072019
Total chi-square now = 0.87873536072019

Processing row 1, column 2 ...
Observed value (O) = 22
Expected value (E) = (row total x column total) / grand total
E = (49 x 61) / 113 = 26.4513274336283
Chi-square = (O - E)squared / E
Chi-square = ((22 - 26.4513274336283) **2) / 26.4513274336283
Chi-square = 0.74908588126967
Total chi-square now = 1.62782124198986

Processing row 2, column 1 ...
Observed value (O) = 25
Expected value (E) = (row total x column total) / grand total
E = (64 x 52) / 113 = 29.4513274336283
Chi-square = (O - E)squared / E
Chi-square = ((25 - 29.4513274336283) **2) / 29.4513274336283
Chi-square = 0.672781760551395
Total chi-square now = 2.30060300254126

Processing row 2, column 2 ...
Observed value (O) = 39
Expected value (E) = (row total x column total) / grand total
E = (64 x 61) / 113 = 34.5486725663717
Chi-square = (O - E)squared / E
Chi-square = ((39 - 34.5486725663717) **2) / 34.5486725663717
Chi-square = 0.573518877847092
Total chi-square now = 2.87412188038835

Calculating probability (P) ...
Looking up critical values for chi at df = 1:
Sig levels: 0.20 0.10 0.05 0.025 0.01 0.001
Crit vals: 1.64 2.71 3.84 5.02 6.64 10.83
Sig. 0.20: chi is greater than or equal to 1.64
Sig. 0.10: chi is greater than or equal to 2.71

Degrees of freedom: 1
Chi-square = 2.87412188038835
For significance at the .05 level, chi-square should be greater than or equal to 3.84.
The distribution is not significant.
p is less than or equal to 0.10.

Analysis Related to Particular Purpose of the Dual Hypotheses

The following dual null hypotheses were tested: There is not a significant relationship between test score prediction and gender in the fifth grade. There is not a significant relationship between subject matter content (including: spelling, mathematics, social studies, science, and language arts) and test score prediction for students in the fifth grade. These hypotheses were found to be accepted in only two of the six measured subject areas.

Social Studies and Science were found to be not statistically significant to an acceptable measure, this meant that the hypotheses were accepted and the correlation between gender and subject area in these two cases could be due to chance, and actually have no correlation. The other four subject areas, mathematics, reading/vocabulary,

language/grammar, and spelling all proved the dual hypotheses unacceptable and showed that a correlation did exist between gender and test score prediction. The males consistently scored higher on the test prediction scales, showing they could predict their score with more reliably than the females in the four subject areas mentioned.

Chapter V

Summary, Conclusions, and Recommendations

Introduction

The goal of student self assessment in this study was to give the instructor feedback-- first hand knowledge of the level of understanding/comprehension the students have of the concepts in a given subject area. The purpose for test score predictions was to enable the classroom teacher to teach the areas of subject matter that were needed, not teach what has already been mastered as a skill. Previous research has shown mixed results in the area of whether gender or subject area affects test score prediction. This provided support for the dual null hypotheses. There is not a significant relationship between test score prediction and gender in the fifth grade. There is not a significant relationship between subject matter content (including: spelling, mathematics, social studies, science, and language arts) and test score prediction for students in the fifth grade.

Summary of the Problem

What is the correlation between test score prediction accuracy and the areas of gender and subject content? Do girls predict better in certain subject areas than boys and vice-versa? Can the knowledge of the children's strengths and weaknesses help the pupils to become better students and use their time wisely? Will the students understand the help they are getting regarding their study habits with the information provided to them though their test score prediction? Does a teacher have to instruct one gender more

than another in certain subject areas? All of these questions are parts of the problem this research tried to answer.

Summary of the Dual Hypotheses

There is not a significant relationship between test score prediction and gender in the fifth grade. There is not a significant relationship between subject matter content (including: spelling, mathematics, social studies, science, and language arts) and test score prediction for students in the fifth grade. This leads to the fact that since there is no relationship, the test prediction score should be accurate and valid. Of the six subject areas tested two accept these hypotheses, while the other four subject areas demonstrated non-acceptance of the dual null hypotheses.

Summary of the Procedure

Before each test the researcher passed out a copy of the test score prediction sheet to every student taking the test. The students wrote down their names, gender, and subject area on which they were about to be tested, and the grade they believed they would earn on the upcoming test. The researcher then collected all the test prediction sheets. Once the test scores were obtained for the test prediction sheets in question, the researcher wrote down the actual grade the child received on the test onto the test score prediction sheet.

The test score prediction sheets were then placed into a central book for safe keeping until the end of the research. At the end of the study the total amount of test score prediction sheets were then sorted by gender and then sorted again by subject area.

The total amount of students who predicted correctly for that gender and subject were recorded.

After all the data was collected, it was processed through the chi square design and frequencies in different categories were charted and noted with results disclosing a relationship between gender and the area of test score prediction and the subject area. The dual null hypotheses were used for the distribution in the chi square calculations. This means there were to be equal numbers of males and females correctly predicting their scores.

Summary of Findings

The following four subject areas were found to be in disagreement with the dual null hypotheses presented above:

Spelling

Using the statistical treatment of chi square, the chi square value calculated equaled 9.583. This value was significant to 0.01. Thus, the correlation between spelling and gender on test score prediction was significant. The dual null hypotheses were not accepted by this statement. There was a correlation to the areas of gender and the subject area of spelling on test score prediction.

Reading/Vocabulary

Using the statistical treatment of chi square, the chi square value calculated equaled 14.272. This value was significant to 0.001. Thus, the correlation between reading/vocabulary and gender on test score prediction was significant. The dual null

hypotheses were not accepted by this statement. There was a correlation to the areas of gender and the subject area of reading/vocabulary on test score prediction.

Langauge/Grammar

Using the statistical treatment of chi square, the chi square value calculated equaled 5.121. This value was significant to 0.025. Thus, the correlation between language/grammar and gender on test score prediction was significant. The dual null hypotheses were not accepted by this statement. There was a correlation to the areas of gender and the subject area of language/grammar on test score prediction.

Mathematics

Using the statistical treatment of chi square, the chi square value calculated equaled 7.166. This value was significant to 0.01. Thus, the correlation between mathematics and gender on test score prediction was significant. The dual null hypotheses were not accepted by this statement. There was a correlation to the areas of gender and the subject area of mathematics on test score prediction.

The next two subject areas were found to be in agreement with the dual null hypotheses. There was no correlation between subject area and gender with test score prediction.

Social Studies

Using the statistical treatment of chi square, the chi square value calculated equaled 2.914. This value was not significant to 0.1. Thus, the correlation between social studies and gender on test score prediction was not significant. The dual null hypotheses were accepted by this statement. There was no correlation to the areas of gender and the subject area of social studies on test score prediction.

Science

Using the statistical treatment of chi square, the chi square value calculated equaled 2.874. This value was not significant to 0.1. Thus, the correlation between science and gender on test score prediction was not significant. The dual null hypotheses were accepted by this statement. There was no correlation to the areas of gender and the subject area of science on test score prediction.

Conclusions

The conclusions that can be drawn from the this study are ones that were discovered by many previous researchers. The data seems to suggest that males are better in predicting their score in almost all subjects tested in this study. Attention must be paid to the science test predictions score observed here. Females are shown in many studies to be deficient in these subject areas but science was one of the subject areas accepting the null hypotheses in this study.

Notice must be given that the small sample size of this research did effect the statistical operations. The science and mathematics total number of test score predictions were off by 4 total test predictions. The male test predictions were exact in both cases, 27 correct and 25 incorrect. The female score held the 4 difference. Mathematics held the extra four result and they were in the incorrect test prediction side. Thus, the results were that mathematics proved statistically significant while science did not. Those

results were from only a difference of four test prediction scores. Thus, the calculations were extremely size sensitive.

From the data collected in this study the following can be concluded: Mathematics, spelling, language/grammar, and reading/vocabulary were subject areas that males could consistently predict their scores more correctly than females. The subject areas of science and social studies were not predicted more accurately by either gender.

Implications and Recommendations

The data states that males were a more proper judge of their knowledge level than were females. This information can be used by classroom instructors to gauge the level of learning taking place in the classroom. If the test prediction sheet is handed out preceding a test and the teacher quickly looks over the males predictions and sees that they are all predicting low scores, that instructor may want to postpone on the testing to explore what material needs to be reviewed. This information shows that test score prediction can become a valuable classroom aide to the instructor.

The review of literature for this study brought some facts to light that were also uncovered by the results of this research. Females in the fifth grade and/or in the beginning of adolescence seem to suffer from low self esteem. This was evident in the low correct prediction rates. Even though it might be said that they were just not knowledgeable about their own ability, but for the results gained in this research the consistently missed predictions symbolizes the low self esteem in this researcher's opinion.

The results of this study also highlight how size of the population is of utmost importance in research studies. For a subject area to swing from significant to insignificant with the result of four test predictions, shows how this data cannot be drawn out and applied to general public. The subject matter and teaching style is also a variable that will differ in almost every classroom across the country, so test prediction will depend on both of those variables. Test prediction is highly unstable as a measure that can drawn out for the general population.

Recommendations for this study would be to increase the size and scope of this study. The fifty students used for this research was too small to gather the number of test predictions needed to make solid and unwavering statistical calculations. A longer information gathering period is also a good idea to employ. At least over six months or a year would be prove better. Sampling from different schools and cities would also add to the research immeasurably. The choice grade level(s) is researcher's privilege, grade level may be single or multiple. The scope of the study would increase greatly if many grade and age levels were a part of the sample.

As with all research, more study and experimentation is highly recommended. This researcher finds this particular issue of great interest and of potential usefulness to classroom instructors all over the world. More research is deserved and would be well received by many. Test score prediction and subject area is of utmost importance. Its' relationship to gender adds help to many different fields of study with education only being part of the big story. It is this researcher's hope that larger and broader studies are done.

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APPENDIX A

1990 US Census Data
Database: C90STF3A
Summary Level: State--County--County Subdivision

******* county: FIPS.STATE=34, FIPS.COUNTY90=007,
FIPS.COUSUB90=02200

100-PERCENT COUNT OF PERSONS
Universe: Persons
Total....9205
PERCENT OF PERSONS IN SAMPLE
Universe: Persons
Total....15.8
HOUSEHOLDS
Universe: Households
Total....3586
URBAN AND RURAL
Universe: Persons
Urban:
Inside urbanized area....9205
Outside urbanized area....0
Rural:
Farm....0
Nonfarm....0
SEX
Universe: Persons
Male....4383
Female....4822
RACE
Universe: Persons
White....9164
Black....16
American Indian, Eskimo, or Aleut....11
Asian or Pacific Islander....8
Other race....6
AGE
Universe: Persons
Under 1 year....130
1 and 2 years....330
3 and 4 years....217
5 years....157
6 years....92
7 to 9 years....374
10 and 11 years....263

12 and 13 years....226
14 years....84
15 years....92
16 years....108
17 years....91
18 years....103
19 years....98
20 years....83
21 years....81
22 to 24 years....366
25 to 29 years....817
30 to 34 years....920
35 to 39 years....666
40 to 44 years....687
45 to 49 years....409
50 to 54 years....327
55 to 59 years....473
60 and 61 years....176
62 to 64 years....185
65 to 69 years....477
70 to 74 years....486
75 to 79 years....348
80 to 84 years....161
85 years and over....178

PERSONS IN HOUSEHOLD

Universe: Households

1 person....1018
2 persons....1085
3 persons....561
4 persons....544
5 persons....249
6 persons....84
7 or more persons....45

HOUSEHOLD TYPE AND RELATIONSHIP

Universe: Persons

In family households:

- Householder....2409
- Spouse....1877
- Child:
  - Natural-born or adopted....2925
  - Step....103
- Grandchild....52
- Other relatives....346
- Nonrelatives....129

In non family households:
Male householder:
Living alone....379
Not living alone....108
Female householder:
Living alone....639
Not living alone....51
Nonrelatives....187
In group quarters:
Institutionalized persons....0
Other persons in group quarters....0

HOUSEHOLD TYPE AND PRESENCE AND AGE OF CHILDREN

Universe: Households
Family households:
Married-couple family:
With own children under 18 years....866
No own children under 18 years....992
Other family:
Male householder, no wife present:
With own children under 18 years....25
No own children under 18 years....56
Female householder, no husband present:
With own children under 18 years....170
No own children under 18 years....300
Non family households....1177

AGE BY LANGUAGE SPOKEN AT HOME AND ABILITY TO SPEAK ENGLISH

Universe: Persons 5 years and over
5 to 17 years:
Speak only English....1451
Speak Spanish:
Speak English "very well"....26
Speak English "well"....0
Speak English "not well" or "not at all"....5
Speak Asian or Pacific Island language:
Speak English "very well"....0
Speak English "well"....0
Speak English "not well" or "not at all"....0
Speak other language:
Speak English "very well"....0
Speak English "well"....0
Speak English "not well" or "not at all"....5
18 to 64 years:
Speak only English....5180
Speak Spanish:
Speak English "very well"....27

Speak English "well".....11
Speak English "not well" or "not at all".....20
Speak Asian or Pacific Island language:
Speak English "very well".....0
Speak English "well".....0
Speak English "not well" or "not at all".....8
Speak other language:
Speak English "very well".....104
Speak English "well".....28
Speak English "not well" or "not at all".....13
65 years and over:
Speak only English.....1550
Speak Spanish:
Speak English "very well".....8
Speak English "well".....0
Speak English "not well" or "not at all".....0
Speak Asian or Pacific Island language:
Speak English "very well".....0
Speak English "well".....0
Speak English "not well" or "not at all".....0
Speak other language:
Speak English "very well".....58
Speak English "well".....7
Speak English "not well" or "not at all".....27
PLACE OF WORK---STATE AND COUNTY LEVEL
Universe: Workers 16 years and over
Worked in State of residence:
Worked in county of residence.....2752
Worked outside county of residence.....883
Worked outside State of residence.....1036
MEANS OF TRANSPORTATION TO WORK
Universe: Workers 16 years and over
Car, truck, or van:
Drove alone.....3440
Carpooled.....637
Public transportation:
Bus or trolley bus.....94
Streetcar or trolley car.....0
Subway or elevated.....193
Railroad.....73
Ferryboat.....0
Taxicab.....5
Motorcycle.....4
Bicycle.....18
Walked.....105

Other means....24
Worked at home....78
TRAVEL TIME TO WORK
Universe: Workers 16 years and over
Did not work at home:
Less than 5 minutes....123
5 to 9 minutes....540
10 to 14 minutes....768
15 to 19 minutes....820
20 to 24 minutes....759
25 to 29 minutes....306
30 to 34 minutes....554
35 to 39 minutes....141
40 to 44 minutes....115
45 to 59 minutes....250
60 to 89 minutes....202
90 or more minutes....15
Worked at home....78
SCHOOL ENROLLMENT AND TYPE OF SCHOOL
Universe: Persons 3 years and over
Enrolled in preprimary school:
Public school....132
Private school....52
Enrolled in elementary or high school:
Public school....1104
Private school....202
Enrolled in college:
Public school....424
Private school....121
Not enrolled in school....6710
EDUCATIONAL ATTAINMENT
Universe: Persons 18 years and over
Less than 9th grade....448
9th to 12th grade, no diploma....952
High school graduate (includes equivalency)....2642
Some college, no degree....1318
Associate degree....366
Bachelor's degree....974
Graduate or professional degree....341
INDUSTRY
Universe: Employed persons 16 years and over
Agriculture, forestry, and fisheries (000-039)....18
Mining (040-059)....0
Construction (060-099)....348
Manufacturing, non durable goods (100-229)....328

$5,000 to $9,999....281
$10,000 to $12,499....85
$12,500 to $14,999....142
$15,000 to $17,499....164
$17,500 to $19,999....106
$20,000 to $22,499....111
$22,500 to $24,999....108
$25,000 to $27,499....210
$27,500 to $29,999....120
$30,000 to $32,499....164
$32,500 to $34,999....87
$35,000 to $37,499....159
$37,500 to $39,999....98
$40,000 to $42,499....182
$42,500 to $44,999....84
$45,000 to $47,499....100
$47,500 to $49,999....133
$50,000 to $54,999....258
$55,000 to $59,999....253
$60,000 to $74,999....308
$75,000 to $99,999....229
$100,000 to $124,999....60
$125,000 to $149,999....23
$150,000 or more....29

MEDIAN HOUSEHOLD INCOME IN 1989
Universe: Households
Median household income in 1989....36934

INTEREST, DIVIDEND, OR NET RENTAL INCOME IN 1989
Universe: Households
With interest, dividend, or net rental income....1972
No interest, dividend, or net rental income....1614

SOCIAL SECURITY INCOME IN 1989
Universe: Households
With Social Security income....1233
No Social Security income....2353

PUBLIC ASSISTANCE INCOME IN 1989
Universe: Households
With public assistance income....94
No public assistance income....3492

PER CAPITA INCOME IN 1989 BY RACE
Universe: Persons
Per capita income in 1989:
White....16073
Black....0
American Indian, Eskimo, or Aleut....23218

Asian or Pacific Islander....5700
Other race....70000
100-PERCENT COUNT OF HOUSING UNITS
Universe: Housing units
Total....3756
OCCUPANCY STATUS
Universe: Housing units
Occupied....3622
Vacant....134
URBAN AND RURAL
Universe: Housing units
Urban:
Inside urbanized area....3756
Outside urbanized area....0
Rural:
Farm....0
Nonfarm....0
TENURE
Universe: Occupied housing units
Owner occupied....2644
Renter occupied....978
TENURE BY PERSONS IN UNIT
Universe: Occupied housing units
Owner occupied:
1 person....481
2 persons....866
3 persons....502
4 persons....476
5 persons....201
6 persons....87
7 or more persons....31
Renter occupied:
1 person....558
2 persons....230
3 persons....60
4 persons....69
5 persons....42
6 persons....4
7 or more persons....15
MEDIAN YEAR STRUCTURE BUILT
Universe: Housing units
Median year structure built....1939
MEDIAN GROSS RENT
Universe: Specified renter-occupied housing units paying cash rent
Median gross rent....507

1990 US Census Data
Database: C90STF3A
Summary Level: State--County--County Subdivision

******* **** county: FIPS.STATE=34,
FIPS.COUNTY90=007, FIPS.COUSUB90=02230

100-PERCENT COUNT OF PERSONS
Universe: Persons
Total....1150
PERCENT OF PERSONS IN SAMPLE
Universe: Persons
Total....46.7
FAMILIES
Universe: Families
Total....349
HOUSEHOLDS
Universe: Households
Total....498
URBAN AND RURAL
Universe: Persons
Urban:
 Inside urbanized area....1147
 Outside urbanized area....0
Rural:
 Farm....0
 Nonfarm....0
SEX
Universe: Persons
Male....525
Female....622
RACE
Universe: Persons
White....1145
Black....0
American Indian, Eskimo, or Aleut....2
Asian or Pacific Islander....0
Other race....0
AGE
Universe: Persons
Under 1 year....12
1 and 2 years....30
3 and 4 years....23
5 years....8

6 years....20
7 to 9 years....26
10 and 11 years....14
12 and 13 years....11
14 years....2
15 years....7
16 years....8
17 years....0
18 years....24
19 years....7
20 years....22
21 years....14
22 to 24 years....60
25 to 29 years....108
30 to 34 years....67
35 to 39 years....38
40 to 44 years....49
45 to 49 years....97
50 to 54 years....73
55 to 59 years....61
60 and 61 years....24
62 to 64 years....37
65 to 69 years....79
70 to 74 years....109
75 to 79 years....75
80 to 84 years....32
85 years and over....10

PERSONS IN HOUSEHOLD

Universe: Households

1 person....143
2 persons....197
3 persons....69
4 persons....57
5 persons....18
6 persons....10
7 or more persons....4

HOUSEHOLD TYPE AND RELATIONSHIP

Universe: Persons

In family households:
- Householder....349
- Spouse....236
- Child:
  - Natural-born or adopted....339
  - Step....10
- Grandchild....23

Other relatives....30
Nonrelatives....4
In non family households:
Male householder:
Living alone....27
Not living alone....6
Female householder:
Living alone....116
Not living alone....0
Nonrelatives....7
In group quarters:
Institutionalized persons....0
Other persons in group quarters....0
HOUSEHOLD TYPE AND PRESENCE AND AGE OF CHILDREN
Universe: Households
Family households:
Married-couple family:
With own children under 18 years....50
No own children under 18 years....191
Other family:
Male householder, no wife present:
With own children under 18 years....0
No own children under 18 years....16
Female householder, no husband present:
With own children under 18 years....25
No own children under 18 years....67
Non family households....149
AGE BY LANGUAGE SPOKEN AT HOME AND ABILITY TO SPEAK ENGLISH
Universe: Persons 5 years and over
5 to 17 years:
Speak only English....96
Speak Spanish:
Speak English "very well"....0
Speak English "well"....0
Speak English "not well" or "not at all"....0
Speak Asian or Pacific Island language:
Speak English "very well"....0
Speak English "well"....0
Speak English "not well" or "not at all"....0
Speak other language:
Speak English "very well"....0
Speak English "well"....0
Speak English "not well" or "not at all"....0
18 to 64 years:
Speak only English....653

Speak Spanish:
Speak English "very well".....0
Speak English "well".....2
Speak English "not well" or "not at all".....0
Speak Asian or Pacific Island language:
Speak English "very well".....4
Speak English "well".....0
Speak English "not well" or "not at all".....0
Speak other language:
Speak English "very well".....20
Speak English "well".....2
Speak English "not well" or "not at all".....0
65 years and over:
Speak only English.....296
Speak Spanish:
Speak English "very well".....2
Speak English "well".....0
Speak English "not well" or "not at all".....0
Speak Asian or Pacific Island language:
Speak English "very well".....0
Speak English "well".....0
Speak English "not well" or "not at all".....0
Speak other language:
Speak English "very well".....5
Speak English "well".....2
Speak English "not well" or "not at all".....0

PLACE OF WORK---STATE AND COUNTY LEVEL

Universe: Workers 16 years and over

Worked in State of residence:
Worked in county of residence.....320
Worked outside county of residence.....82
Worked outside State of residence.....90

MEANS OF TRANSPORTATION TO WORK

Universe: Workers 16 years and over

Car, truck, or van:
Drove alone.....350
Carpooled.....102
Public transportation:
Bus or trolley bus.....8
Streetcar or trolley car.....0
Subway or elevated.....2
Railroad.....0
Ferryboat.....0
Taxicab.....0
Motorcycle.....0

Bicycle....0
Walked....23
Other means....0
Worked at home....7
TRAVEL TIME TO WORK
Universe: Workers 16 years and over
Did not work at home:
Less than 5 minutes....15
5 to 9 minutes....61
10 to 14 minutes....93
15 to 19 minutes....100
20 to 24 minutes....95
25 to 29 minutes....28
30 to 34 minutes....40
35 to 39 minutes....8
40 to 44 minutes....19
45 to 59 minutes....19
60 to 89 minutes....7
90 or more minutes....0
Worked at home....7
SCHOOL ENROLLMENT AND TYPE OF SCHOOL
Universe: Persons 3 years and over
Enrolled in preprimary school:
Public school....12
Private school....0
Enrolled in elementary or high school:
Public school....98
Private school....4
Enrolled in college:
Public school....51
Private school....2
Not enrolled in school....938
EDUCATIONAL ATTAINMENT
Universe: Persons 18 years and over
Less than 9th grade....124
9th to 12th grade, no diploma....320
High school graduate (includes equivalency)....389
Some college, no degree....115
Associate degree....17
Bachelor's degree....15
Graduate or professional degree....6
INDUSTRY
Universe: Employed persons 16 years and over
Agriculture, forestry, and fisheries (000-039)....1
Mining (040-059)....0

Construction (060-099)....46
Manufacturing, non durable goods (100-229)....39
Manufacturing, durable goods (230-399)....56
Transportation (400-439)....44
Communications and other public utilities (440-499)....6
Wholesale trade (500-579)....28
Retail trade (580-699)....91
Finance, insurance, and real estate (700-720)....49
Business and repair services (721-760)....41
Personal services (761-799)....7
Entertainment and recreation services (800-811)....9
Professional and related services (812-899):
  Health services (812-840)....31
  Educational services (842-860)....21
  Other professional and related services (841, 861-899)....25
Public administration (900-939)....24
OCCUPATION
Universe: Employed persons 16 years and over
Managerial and professional specialty occupations (000-202):
  Executive, administrative, and managerial occupations (000-042)....53
  Professional specialty occupations (043-202)....12
Technical, sales, and administrative support occupations (203-402):
  Technicians and related support occupations (203-242)....20
  Sales occupations (243-302)....79
  Administrative support occupations, including clerical (303-402)....107
Service occupations (403-472):
  Private household occupations (403-412)....3
  Protective service occupations (413-432)....18
  Service occupations, except protective and household (433-472)....41
Farming, forestry, and fishing occupations (473-502)....1
Precision production, craft, and repair occupations (503-702)....86
Operators, fabricators, and laborers (703-902):
  Machine operators, assemblers, and inspectors (703-802)....41
  Transportation and material moving occupations (803-863)....38
  Handlers, equipment cleaners, helpers, and laborers (864-902)....19
CLASS OF WORKER
Universe: Employed persons 16 years and over
Private for profit wage and salary workers....401
Private not-for-profit wage and salary workers....34
Local government workers....32
State government workers....9
Federal government workers....23
Self-employed workers....19
Unpaid family workers....0

HOUSEHOLD INCOME IN 1989
Universe: Households
Less than $5,000....20
$5,000 to $9,999....78
$10,000 to $12,499....40
$12,500 to $14,999....17
$15,000 to $17,499....41
$17,500 to $19,999....16
$20,000 to $22,499....23
$22,500 to $24,999....17
$25,000 to $27,499....26
$27,500 to $29,999....18
$30,000 to $32,499....15
$32,500 to $34,999....13
$35,000 to $37,499....14
$37,500 to $39,999....22
$40,000 to $42,499....17
$42,500 to $44,999....17
$45,000 to $47,499....16
$47,500 to $49,999....11
$50,000 to $54,999....13
$55,000 to $59,999....11
$60,000 to $74,999....33
$75,000 to $99,999....15
$100,000 to $124,999....5
$125,000 to $149,999....0
$150,000 or more....0
MEDIAN HOUSEHOLD INCOME IN 1989
Universe: Households
Median household income in 1989....24559
INTEREST, DIVIDEND, OR NET RENTAL INCOME IN 1989
Universe: Households
With interest, dividend, or net rental income....170
No interest, dividend, or net rental income....328
SOCIAL SECURITY INCOME IN 1989
Universe: Households
With Social Security income....245
No Social Security income....253
PUBLIC ASSISTANCE INCOME IN 1989
Universe: Households
With public assistance income....40
No public assistance income....458
MEDIAN FAMILY INCOME IN 1989
Universe: Families
Median family income in 1989....32266

POVERTY STATUS IN 1989 BY AGE
Universe: Persons for whom poverty status is determined
Income in 1989 above poverty level:
Under 5 years....50
5 years....8
6 to 11 years....50
12 to 17 years....23
18 to 24 years....116
25 to 34 years....162
35 to 44 years....85
45 to 54 years....161
55 to 59 years....59
60 to 64 years....61
65 to 74 years....168
75 years and over....104
Income in 1989 below poverty level:
Under 5 years....15
5 years....0
6 to 11 years....10
12 to 17 years....5
18 to 24 years....11
25 to 34 years....13
35 to 44 years....2
45 to 54 years....9
55 to 59 years....2
60 to 64 years....0
65 to 74 years....20
75 years and over....13
100-PERCENT COUNT OF HOUSING UNITS
Universe: Housing units
Total....498
URBAN AND RURAL
Universe: Housing units
Urban:
Inside urbanized area....512
Outside urbanized area....0
Rural:
Farm....0
Nonfarm....0
TENURE
Universe: Occupied housing units
Owner occupied....119
Renter occupied....393

MEDIAN YEAR STRUCTURE BUILT
Universe: Housing units
Median year structure built.....1945
MEDIAN GROSS RENT
Universe: Specified renter-occupied housing units paying cash rent
Median gross rent.....305

APPENDIX B

TEST SCORE PREDICTION SHEET

1. Name:_____

2. Subject:_____

3. Circle your gender: Male Female

4. Circle the grade you think you will get on this test.

A **B** **C** **D** **F**

****
****
****

5. Grade Recieved _____

VITA

Name:	Slade B. Spencer
Date and Place of Birth:	January 9th, 1969 Mount Vernon, Ohio
Elementary School:	Park Elementary Grove City, Pennsylvania
High School:	Clearview Regional High School Mullica Hill, New Jersey
College:	Glassboro State College Glassboro, New Jersey B.A. Law and Justice, 1991
Graduate:	Rowan University Glassboro, New Jersey M.S.T. Elementary Education, 1998