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Correlation Between SOL Scores and Personal Computer Ownership with Internet Access

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Correlation Between SOL Scores and Personal Computer Ownership with Internet Access

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APPROVAL PAGE

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Christy D. Yaple

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	Passed SOL	Failed SOL
PC w/ Internet Access	29	4
No PC w/ Internet Access	13	6

CHAPTER I

INTRODUCTION

There is a large population of underrepresented students in the United States of America, whose options are limited because of the lack of accessibility and resources. In 2002, President Bush implemented the No Child Left Behind Act (NCLB). This plan was to ensure accountability among teachers, schools, and states. Each state developed a tool or set of tools to measure academic performance. The state of Virginia uses the Standards of Learning, better known as SOL's. The SOL's describe the Commonwealth's expectations for student learning and achievement in grades K-12 in English, mathematics, science, history/social science, technology, the fine arts, foreign language, health and physical education, and driver education.

The majority of underrepresented students come from low-income families. Many of them feel their college and career opportunities are restricted because they can not afford to continue their education. Recent studies have shown that Student Aptitude Test (SAT) scores of this underrepresented population as a whole are much lower than the scores of their peers. Students' lack of resources hinders the amount of time they spend preparing for SOL's and studying for related subjects. A major resource that students who are considered low-income might not have access to is a personal computer with Internet access. Parents can not afford to buy the computer and continue to pay for Internet services. It is important to determine the strength of the relationship between SOL scores and having a personal computer with Internet access in order to discover the factors involved in the score discrepancy.

STATEMENT OF THE PROBLEM

The problem of this study was to determine the relationship between Magna Vista High School Educational Talent Search students having a personal computer with Internet access and their success on the mathematics Standards of Learning tests.

RESEARCH GOALS

This study was used to gain information about the success of underrepresented high school students with regard to SOL scores and having a personal computer with Internet access. The following hypothesis was developed to guide this study:

> H_1: Magna Vista High School Educational Talent Search students having a personal computer with Internet access will have a higher pass rate on Virginia Standards of Learning mathematics tests.

BACKGROUND AND SIGNIFICANCE

The Educational Talent Search Program (ETS) is part of the Higher Education Act of 1965. ETS is part of our nation's TRIO programs. The programs identify and assist middle and high school students from disadvantaged backgrounds who have the potential to succeed in higher education. (Council for Opportunity in Education, 2005) Services provided to students include academic, career, and financial counseling. The goal of Talent Search is to increase the number of youth from disadvantaged backgrounds who complete high school and enroll in post-secondary education. (United States of Education, 2005) The program also offers tutoring for students who need assistance in select subjects, particularly those related to the SOL's.

The Standards of Learning for Virginia Public Schools have been in effect for many years, now part of the No Child Left Behind Act. They represent a broad consensus of what parents, teachers, administrators, and business and community leaders believe should be taught at the schools and what students should learn. A curriculum framework details the specific knowledge and skills students must possess to meet the standards of English, Mathematics, Science, and History/Social Science. (Virginia Department of Education, 2005) Today, students require stronger mathematical knowledge and skills to pursue higher education, compete in a technologically oriented workforce, and be productive citizens.

The majority of the participants of the ETS program at Magna Vista High School are African-American. Past studies have shown that there is a huge achievement gap between minority and disadvantaged students and their white peers. (National Governor's Association Center for Best Practices, 2005) This is one of the most pressing education-policy challenges, both nationally and state-wide. The No Child Left Behind Act now requires states to set the same performance targets for disadvantaged students.

In 1998, Virginia statistics showed that Caucasian students passed at a rate of 26% more than African-American students on the Algebra I SOL test. (Virginia Department of Education Division of Assessment and Reporting, 2005) From 1999 – 2002, the pass rates of Caucasian students were an average of 24% higher than African-American students. (Virginia Department of Education Division of Assessment and Reporting, 2005) In Geometry, 1998 – 2002 pass rates of Caucasian students were an average of 32.6% higher than African-American students. (Virginia Department of Education Division of Assessment and Reporting, 2005) Finally, in Algebra II, 1998 –

2002 pass rates of Caucasian students were an average of 22.2% higher than African-American students. (Virginia Department of Education Division of Assessment and Reporting, 2005)

There are many programs providing needed services that can be credited for the gradual increase, however there still needs to be more focus on closing this achievement gap. Many students face class, social, cultural, and academic barriers. Most of them are from low-income families and do not have access to a personal computer with Internet access, therefore they may not be as prepared as students who have personal computers and Internet resources.

The "digital divide" is a term used to describe the difference between those who have access to technology and those who do not. The community of Martinsville-Henry County has recently been hit with a great number of lay offs and business closings. Many of the families who reside in this area are considered low-income. (U. S. Census Bureau, 2005) In order for leaders to be effective in closing the achievement gap, they must first find the problem. For this reason, the study for determining the relationship between SOL scores and having a personal computer with Internet access is necessary.

LIMITATIONS

The following limitations have affected this study:

1) The population of this study was limited to students currently enrolled at Magna Vista High School, Ridgeway, Virginia, and participate in the Educational Talent Search Program.

2) SOL scores employed in this study only included test results for the 2004 – 2005 school year as the prior year scores were unavailable.

3) Students were aware that 1998 – 2001 SOL scores had no bearing on their academic standing.

ASSUMPTIONS

The following assumptions were made concerning this study:

1) SOL scores available for this study will be representative of current SOL scores.

2) The sample of students will be representative of the student population at Magna Vista High School.

3) All students were given ample time and special needs were met in order to complete SOL testing.

PROCEDURES

In order to complete this study and answer the research goals, SOL scores for Magna Vista High School students who participate in the Educational Talent Search Program were reviewed and recorded. Prior to viewing any test scores, permission was obtained from the principal of Magna Vista High School. A total of 70 participants were used to complete this study. A survey was used to collect data determining those students who had access to a personal computer and Internet resources and those who did not. The scores were recorded, tabulated, and analyzed to determine the relationship between SOL scores and having a personal computer and access to internet resources.

DEFINITION OF TERMS

The following terms were significant to this study:

1) ETS – Educational Talent Search, a program that identifies and

assists middle and high school students who are from disadvantaged backgrounds that have the potential to succeed in higher education. (Council for Opportunity in Education, 2005)

2) Underrepresented students – Students in one or more of the following categories: low-income, disabled, limited English proficiency, or minority.

3) NCLB – No Child Left Behind Act, signed by President George Bush on January 8, 2002, gives our schools historic educational reform based on: stronger accountability for results, more freedom for states and communities, encouraging proven education methods, and more choices for parents. (U. S. Department of Education, 2005)

4) SOL – Standards of Learning, describes the Commonwealth's expectations for student learning and achievement in grades K-12 in English, mathematics, science, history/social science, technology, the fine arts, foreign language, health and physical education, and driver education. (Virginia Department of Education, 2005)

5) SAT – Scholastic Assessment Test, standardized tests, frequently used by colleges and universities in the United States to aid in the selection of incoming freshmen. (The Free Dictionary.com, 2005)

6) Higher Education Act of 1965 – provides to strengthen the educational resources of our colleges and universities and to provide financial assistance to students in postsecondary and higher education. (U. S. Department of Education, 2005)

SUMMARY AND OVERVIEW

In Chapter I, the problem has been identified and the research hypothesis presented. The problem was to determine the relationship between Magna Vista High School Educational Talent Search students having a personal computer with Internet access and their success on the mathematics Standards of Learning tests. Chapter I also described the background, established the significance, and outlined the limitations, assumptions, procedures and definitions included in this study. There was clearly a need

for this study. Findings of this study could lead to valuable knowledge that will play a vital role in narrowing the achievement gap.

Chapter II will provide a review of literature and Chapter III will explain the methods and procedures used to collect data. The findings of the study will be presented in Chapter IV. Chapter V will summarize the content, conclusions will be drawn and recommendations will be made.

CHAPTER II

REVIEW OF LITERATURE

Chapter II, a Review of Literature, was conducted to determine the relationship between SOL scores and owning a personal computer with Internet access. The following topics were explored in the Review of Literature: 1) Virginia Mathematics Standards of Learning, 2) The Achievement Gap and 3) The Digital Divide.

VIRGINIA MATHEMATICS STANDARDS OF LEARNING

The Standards of Learning for Mathematics identify academic content for essential components of the mathematics curriculum at different grade levels for Virginia's public schools. (Commonwealth of Virginia Board of Education, 2002) Specific standards are identified for kindergarten through grade eight and for a core set of high school courses based on data gathered by parents, teachers, administrators, etc. From kindergarten through grade eight, specific content strands are included in a student's mathematics schooling. The content strands include Number and Number Sense; Computation and Estimation; Measurement; Geometry; Probability and Statistics; and Patterns, Functions, and Algebra. (Commonwealth of Virginia Board of Education, 2002) As students climb each grade level, the SOL's for each strand progress in complexity.

Today, students require stronger mathematical knowledge and skills to finish high school, pursue higher education and compete in a technologically oriented workforce. (Commonwealth of Virginia Board of Education, 2002) It is vital that students gain an

understanding of fundamentals and develop proficiency in mathematical skills. Although the ability to use technology should not be used as a substitute for a student's understanding of quantitative concepts and relationships or for proficiency in basic computations, the use of technology must be an integral part of teaching and learning mathematics. (Commonwealth of Virginia Board of Education, 2002)

THE ACHIEVEMENT GAP

The No Child Left Behind Act, signed into law in 2002, has expanded the federal role in education and set requirements in place that affect every public school in America, including those in Virginia. The NCLB Act includes actions designed to close achievement gaps between different groups of students.

The SOL's are now part of the NCLB. Accountability is an essential step in addressing the achievement gaps that plague our nation. African-American, Hispanic, Special Education, and limited English proficient students have been left behind because schools were simply not held accountable for their individual progress. (U. S. Department of Education, 2005) Under NCLB, every state is required to 1) set standards for grade-level achievement and 2) develop a system to measure the progress of all students and subgroups of students in meeting those state-determined grade-level standards. (U. S. Department of Education, 2005)

According to Virginia Department of Education statistics, the achievement gap between African-American students and Caucasian students still exists, specifically in mathematics. In Grade 3, the 1998 pass rate of the mathematics SOL of African-American students was only 40% where as the pass rate of Caucasian students was 65%.

In 2002, the pass rate of African-American students increased to 65% and the pass rate of Caucasian students increased to 87%. From 1998 – 2002, African-American students' pass rates increased from 27% to 51%. Caucasian students' pass rates increased from 61% to 78%. High school students must pass the end of the course tests in Algebra I, Algebra II, and Geometry. In 1998, the Algebra I pass rates of African-American students was only 20%. By 2002, that percentage had increased to 64%. Algebra II had the lowest pass rate of 13% among African-American students in 1998. Caucasian students pass rate was also low at 34%. By 2002, the African-American pass rate had increased to 62% and the Caucasian pass rate had increased to 80%. Even though African-American students have made tremendous strives to increase overall scores, there still remains an achievement gap between them and Caucasian students. (Virginia Department of Education, 2005)

THE DIGITAL DIVIDE

There are many factors that play a role in the achievement gap between African-American students and Caucasian students. African-American students face many social and economic challenges. A vast majority of African-American children come from low-income families. Many low-income families cannot afford modern technology such as a home computer or Internet access. The digital divide concept is used to describe the growing gap between those who have access to technology and those who do not.

There have been many studies which focus on the concept of the digital divide. A project developed by Molly Davis, Associate Professor at George Mason University, describes a pilot research study of a 5th grade class who were given wireless, laptop

computers which they could use in class and take home. (Davis, 2005) The study sought to understand the impact of students having computers on a number of different measures including standardized test scores, letter grades, student confidence, and parent child interaction. (Davis, 2005) The class was carefully selected ensuring a number of at risk children be included. At risk status was based upon their scores on standardized achievement test, poverty and ethnicity. (Davis, 2005) Classroom activities were to include computer use and homework assignments were expected to be completed on the computer. Results of the project included improved letter grades as well as classroom conduct behavior. (Davis, 2005)

The Educational Development Center for Children and Technology and Computers for Youth completed a one year comparative study of children's use of computers in low- and middle-income homes. The study investigates the digital divide as a literacy issue, rather than a technical one. The Center's definition of digital literacy is defined as a set of habits through which children use computer technology for learning, work, socializing, and fun. (Ba et. al., 2002) The study resulted in the following findings: 1) Middle-income children have more comfort and confidence in using their home computers simply because they have been present in their homes for a considerably longer time. 2) Low-income homes usually have only one computer located in a heavily trafficked area, such as the living room or kitchen. As a result, the children's activities are more likely to be shared with the family and supervised so as to encourage use of the computer for educational purposes. Middle-income homes often have more than one computer so there is less social interaction and children use them more for recreation purposes. (Ba et. al., 2002) Based on these findings, the following recommendations

were made: 1) Fund programs that provide low-income families with home computers and the skills to use them. 2) Help schools become aware of the large roles computers play in children's computing. 3) Support research and programs that can help families in low-income communities maintain consistent Internet connectivity. 4) Fund additional research on understanding the complex relationship among family income, social capital, and technology use in different settings. (Ba et. al., 2002)

In Fall of 2000, a national survey provided by Henry Jay Becker, a professor of education at the University of California, found that only about 22% of children in families with annual incomes of less than $20,000 had access to a home computer, compared to 91% of those in families with annual incomes of more than $75,000. (Becker, 2000) Children in low-income families were reported to use the computer less than those in high-income families, perhaps because of lack of Internet access. The author also states that the two most predictive factors of children's use of home computers were the child's age and the computer's capabilities. The author concludes that home access to computers will be a continued area of inequality in American society, and that schools must play a critical role in ensuring equal opportunity for less-advantaged children to access the benefits of the more intellectually powerful uses of computer technology. (Ba et. al., 2002)

The National Center of Teachers of Mathematics presented an article in 2002 about the appropriateness of computer use with young children. Based on research, the authors concluded that the computer offers unique opportunities for learning through exploration, creative problem solving, and self-guided instruction. (Clements & Sarama, 2002) In the final words of this article, authors state that children who use practice

software about ten minutes a day increase their scores on achievement tests. (Clements & Sarama, 2002)

In 2000, Daylene Lauman presented a review of literature on student home computer use. In this review of literature, a study provided by Dugdale, DeKoven, and Ju (1998) investigated how enrollment in a computer course and having access to a home computer affected the ability of high school students to apply computers as a resource in a pre-algebra mathematics class. (Lauman, 2000) In their sample of 50 high school students, it was found that enrollment in a computer course and ownership of a home computer were major predictors of early success in the mathematics program for females in particular. (Lauman, 2000)

A longitudinal study published in 1995 which tracked a group of students from seventh through twelfth grade, found that students with computers at home had higher overall grades and better grades in mathematics and English than those without home computers. (Subrahmanyam et al., 2000) In addition, studies of the effects of one computer-based after school program, The Fifth Dimension, showed that children who participated in the program had greater advances in reading, mathematics, computer knowledge, following directions, and grammar and had higher scores on school achievement tests, compared with children who do not participate. (Subrahmanyam et al., 2000)

The National Center for Education Statistics developed a Statistical Analysis Report entitled *Computer and Internet Use by Children and Adolescents in 2001.* Statistics showed the following racial/ethnic gaps in home computer use: 41% of Blacks and Hispanics use computers at home, compared to 77% of Whites and Asians.

However, there were no differences detected between racial/ethnic groups who had access to computers at home in terms of their use of computers to complete school assignments. (U. S. Department of Education, 2005)

Governments can make a significant contribution in narrowing the digital divide and possibly the achievement gap. Governments need to create the regulatory conditions whereby prices are fair by ensuring open competition. (Tapscott, 1998, p. 265) They need to take the lead in funding the reinvention of education. (Tapscott, 1998) Business leaders also can play a vital role in the reinvention process. The easiest way for all corporations to ensure universal access is to provide their employees computers to take home. (Tapscott, 1998, p. 275) The author of *Growing Up Digital* concludes that this is not a naïve proposal; it merely makes good business sense. Computers in the home will be instantly embraced by children, who will train their parents, thereby reducing training costs and time taken away from work for training. (Tapscott, 1998, p. 275)

SUMMARY

In Chapter II, a review of literature has been presented related to Virginia Mathematics SOL's, the Achievement Gap and the Digital Divide. Academic content and essential components of Virginia's SOL's were provided. The Achievement Gap between Caucasian and African-American students was addressed, specifically the pass rates of selected mathematics SOL tests. Several studies were presented related to the digital divide and social and economic challenges faced by African-American students. Chapter III will explain the methods and procedures used to collect data.

CHAPTER III

METHODS AND PROCEDURES

Chapter III describes the methods and procedures that were used in this study. The following information includes discussion of the study's population, research variables, instrumentation and data collection.

POPULATION

The population of this study was limited to students in grades 9-12 who attended Magna Vista High School in Ridgeway, Virginia, and participated in the Educational Talent Search Program during the school year 2004-05. A sample of 70 students was used to complete this study.

RESEARCH VARIABLES

The dependent variable for this study was SOL scores in mathematics. SOL's are given annually to students in grades 3, 5, 8 and selected high school courses which are as follows: 11^{th} grade English, Algebra I, Algebra II, Earth Science, Biology, Chemistry, U. S. History, World History/Geography I and World History/Geography II. Students must pass a minimum number of high school SOL tests in order to receive a diploma whether it be a standard or advanced diploma. A student's test results from grades 3, 5, and 8 must be considered in promotion decisions. These requirements address the problem of promoting students before they are academically ready. Students are also now required to pass a number of end-of-course tests as well. Starting with the academic year 2006-07, schools can lose their accreditation because of poor performance on the SOL tests.

The SOL's for mathematics identify academic content for essential components of the mathematics curriculum at different grade levels. Statistics showed that there is a tremendous achievement gap on the SOL mathematics tests, especially in Algebra II, between African-American students and Caucasian students. In general, African-American student SOL mathematics scores have increased over the pass decade; however they are still left behind by their white counterparts. There are many factors that play a role in this achievement gap, including the lack of access to advanced technology.

INSTRUMENT DESIGN

SOL tests were administered to grades 9–12 at the end of various courses throughout the year 2004-05. There are several mathematics SOL tests which include all of the following: Algebra I, Geometry, Algebra II, Trigonometry, Computer Mathematics, Probability and Statistics, Discrete Mathematics and Mathematical Analysis. Students received one of the following results: Did Not Pass, Proficient or Advanced. For the mathematics SOL tests, a score of 400 is required to pass and be considered proficient. A score of 500 means the student is advanced in that course. The mathematics SOL tests are not timed and are all multiple-choice. After each test was completed, test booklets were collected and forwarded to the test center for scoring. SOL scores were collected from the school and examined. Each student must pass two English SOL tests and at least four others.

Surveys were completed by each student who participated in the Educational Talent Search Program the year 2004-05. The survey consisted of questions related to personal computer ownership and Internet access.

DATA COLLECTION

The Guidance Department at Magna Vista High School provided SOL scores for the 2004-05 school year. Test results and surveys for each of the 70 participants were collected and organized by the researcher for this correlation. See Appendix A.

STATISTICAL ANALYSIS

Statistical analysis was done by examining each student's survey and their SOL scores on the Virginia mathematics SOL test. The Chi-square correlation was used in tabulation to determine the relationship between SOL scores and having a personal computer with Internet access. Correlation results were analyzed.

SUMMARY AND OVERVIEW

Chapter III presented information about the population, research variables, methods used to collect data and procedures used to analyze it statistically. It also provided a description of the test instrument used. A Chi-square correlation was selected for this analysis. Chapter IV will present the study's findings.

CHAPTER IV

FINDINGS

The purpose of this study was to determine if there is a correlation between Magna Vista High School Educational Talent Search students having a personal computer with Internet access and their success on the mathematics Standards of Learning tests. This chapter presents the statistical tabulations of data collected for this study.

DATA ANALYSIS

The researcher was only able to obtain 52 out of 70 student questionnaires. Eighteen surveys were not returned. The survey return rate was 74 percent. A comparison of mathematics SOL scores and completed student questionnaires using the Chi-Square resulted in a value of 2.94. See Table 1.

Table 1. The Chi-Square correlation was calculated as follows:

	Passed SOL	Failed SOL
PC w/ Internet Access	29	4
No PC w/ Internet Access	13	6

SUMMARY AND OVERVIEW

The statistical results of 2004-05 SOL scores and student questionnaires have been compiled and summarized. A Chi-square value of 2.94 was calculated. Chapter V will provide a summary, conclusions and recommendations for this study.

CHAPTER V

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

Chapter V addressed the analyzed data. These data were summarized, conclusions drawn and recommendations were made regarding SOL scores and student questionnaires attained by Magna Vista High School Educational Talent Search students who had computer and Internet access.

SUMMARY

The problem of this study was to determine the relationship between Magna Vista High School Educational Talent Search students having a personal computer with Internet access and their success on the mathematics Standards of Learning tests. The hypothesis established for this research was:

> H_1: Magna Vista High School Educational Talent Search students having a personal computer with Internet access will have a higher pass rate on Virginia Standards of Learning mathematics tests.

The Standards of Learning (SOL) tests are taken each year by students in selected grades. Although African-American students as well as those who are categorized as low-income have made strives toward narrowing the achievement gap on standardized tests, the fact remains that the gap still exists.

If the hypothesis of this study proves to be true and statistically validated, the results and recommendations could be valuable to school personnel as well as parents and students.

The following limitations have affected this study:

1) The population of this study was limited to students currently enrolled at Magna Vista High School, Ridgeway, Virginia, and participate in the Educational Talent Search Program.

2) SOL scores employed in this study only included test results for the 2004 – 2005 school year as the prior year scores were unavailable.

3) Students were aware that 1998 – 2001 SOL scores had no bearing on their academic standing.

The population of this study was limited to students in grades 9-12 who attended Magna Vista High School in Ridgeway, Virginia, and participated in the Educational Talent Search Program during the school year 2004-05. A sample of 52 students was used to complete this study.

Statistical analysis was done by examining each student's SOL score and information provided by student questionnaires. A Chi-square correlation was used to determine the relationship between these two variables.

CONCLUSIONS

The findings of this study revealed the hypothesis that students who achieve higher on the SOL mathematics test do have a personal computer with Internet access. A Chi-square correlation using a sample of 52 students was performed and the resulting X^2 of 2.94 was statistically significant at the 5 percent level of 2.710. Therefore the researcher accepted the hypothesis that Magna Vista High School Educational Talent

Search students having a personal computer with Internet access will have a higher pass rate on Virginia Standards of Learning mathematics tests.

RECOMMENDATIONS

Based on the findings and the conclusions of this study, the following recommendations were made to help further determine the correlation between standardized test scores and having a personal computer with Internet access.

1) Additional studies should be conducted using a larger and more diverse population, perhaps in different states across the United States of America. If such studies are conducted and similar correlation is found to be redundant, the U. S. Department of Education and various state departments might want to eliminate the standardized tests as part of grade promotion and school accreditation or find ways to fund a laptop loan program.

2) The addition of after-school programs that provide access to Internet resources and provide homework assistance and one-on-one tutoring should be implemented immediately if not already in effect.

3) Educating parents so they can afford computers instead of just giving away computers should be a top priority. At some point, we have to break the cycle. Employers could possibly offer computers as part of an employment benefit package.

4) Tap into government resources. There are millions of dollars specifically set aside for the digital divide problem. Community leaders and policy-makers should be contacted regarding options.

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APPENDICES

APPENDIX A – SOL Scores and Student Questionnaire Data

APPENDIX B – Student Questionnaire

APPENDIX A

SOL SCORES AND PERSONAL COMPTUER W/INTERNET ACCESS

Sample	SOL Score	Personal Computer w/Internet Access
S1	435	No
S2	411	Yes
S3	442	Yes
S4	439	Yes
S5	385	Yes
S6	457	No
S7	355	No
S8	439	Yes
S9	398	No
S10	465	No
S11	442	No
S12	411	No
S13	461	Yes
S14	461	Yes
S15	443	Yes
S16	443	Yes
S17	457	Yes
S18	373	No
S19	465	Yes
S20	407	Yes
S21	442	Yes
S22	457	No
S23	597	Yes
S24	355	Yes
S25	562	Yes
S26	461	Yes
S27	411	Yes
S28	470	Yes
S29	562	Yes
S30	469	No
S31	544	Yes
S32	457	Yes
S33	389	Yes
S34	508	Yes
S35	482	No
S36	375	No
S37	419	Yes
S38	375	No

APPENDIX A Continued

Sample	SOL Score	Personal Computer w/Internet Access
S39	600	No
S40	439	Yes
S41	411	Yes
S42	375	Yes
S43	419	No
S44	428	Yes
S45	423	No
S46	407	Yes
S47	435	Yes
S48	419	Yes
S49	437	No
S50	375	No
S51	464	Yes
S52	408	No

APPENDIX B

Student Questionnaire

Name _____

Purpose: To determine the relationships of having computer and Internet access and student's SOL scores. Parents must sign the bottom of the survey allowing you to give the researcher your survey information.

Please answer the following questions by checking the appropriate response.

1. What grade are you currently in? _____ 9 _____ 10 _____ 11 _____ 12

2. Do you have a personal computer? _____ Yes _____ No

3. Do you have Internet access? _____ Yes _____ No

4. Have you received any grades this school year below a "C"? _____ Yes _____ No

5. Did you fail any SOL (Standards of Learning) tests this school year?
   _____ Yes _____ No

Please answer all questions below that apply to you.

4. Do you use the computer and/or the Internet to help prepare for Standards of Learning tests (SOL's)? _____ Yes _____ No

5. How often do you use the Internet for completing homework assignments?
   _____ Not at all _____ 1 – 3 times per week _____ more than 3 times per week

6. How often do you use the Internet for leisure activities and/or entertainment?
   _____ Not at all _____ 1 -3 times per week _____ more than 3 times per week

7. Do you feel you have an academic advantage having access to a personal computer and/or
   Internet resources?
   _____ Strongly Agree _____ Agree _____ Undecided
   _____ Disagree _____ Strongly Disagree

8. Do you feel you are at a disadvantage because of the lack of accessibility to a personal computer and/or Internet resources?

_____ Strongly Agree _____ Agree _____ Undecided
_____ Disagree _____ Strongly Disagree

9. How do you complete homework assignments that require access to a personal computer
and/or Internet resources?
_____ School _____ Library _____ Friend's House _____ Other

Parent Permission Signature _____